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VIBRATORY MASSAGE IN THE TREATMENT OF PROGRES- SIVE DEAFNESS, WITH ESPECIAL CONSIDERATION OF MY ELASTIC PRESSURE-PROBE.

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About sixteen years ago I introduced a method of direct mechanical therapy¹ in the treatment of those forms of chronic catarrhal otitis media nomenclatured "sclerotic," which had until then resisted all forms of treatment.

I instituted this mechanical test in an experimental way for about one and one-half years before publishing my results. My results have been so satisfactory, especially in the earlier stages of this class of cases, that I am now fully convinced of the efficacy of such procedure. It is an additional satisfaction to observe that equally good results have been obtained by many of my confreres who have adopted this technique.

It is true that the results of this technique were not as quickly achieved as those of the Politzer method, perhaps because Politzerization can be easily and successfully applied by the intelligent laity and even by the patient himself, while the pressure-probe requires the hand of a skillful specialist and practice in its application.

Concerning the difficulties in the application of these methods, my pressure-probe stands in the same ratio to pneumatic aural massage as does the use of the Eustachian catheter to Politzerization.

The question of pneumo-massage dates back many years to the physiological researches of the ear in the cadaver, as undertaken by

Politzer,² Helmholtz⁴ and myself.³ In these investigations the mechanism of the ossicles was determined by compression and suction, via the auditory canal. Special attention should be directed to the results obtained by G. Herman Meyer,⁵ namely, that with the excursions of the membrana tympani both malleus and incus turn about the same horizontal axis, pivoted by the long process of the malleus and the proc. brevis of the incus. As this axis traverses the hammer at the base of the proc. brevis, it follows that during an inward excursion of the membrana tympani the handle of the malleus is likewise drawn inward, and the head of the malleus, body of the incus and proc. brevis of the malleus are forced outward.

These movements of drum membrane and ossicles can be verified in the normal ear by the application of the Siegel pneumatic otoscope, as can also the principles first observed by Helmholtz that the enumerated parts of the malleus are very limited in their movement compared to the frequent movements of the membrana tympani. It follows, therefore, that in pathological fixation of the sound-conducting apparatus, pneumo-massage can be of but small value, because in such cases the movements of the malleus in their relation to those of the drum membrane are still more limited; this is especially true in atrophy, large cicatrices of the drum membrane and in many cases, as I have observed, in the long-continued use of the air douche, resulting in a gradual relaxation of the drum-membrane.

These preliminary remarks were necessary to induce a better appreciation of the mechanism of my pressure-probe, which has as its special feature the mobilization of the chain of ossicles by means of direct mechanical pressure.

There are three main factors here to be considered:

First—An effective, mechanical point of application.

Second—The sensitiveness of the membrana tympani.

Third—An instrument suitably constructed to meet the requirements of the leverage of the ossicles.

From a purely mechanical standpoint it appeared most effective to apply the pressure directly to the malleus, with the umbo as the point of election. This, however, was contra-indicated, owing to the extreme sensitiveness over the entire area of the membrana tympani, producing thereby small ecchymoses and hemorrhages. The sole exception to this seemed to be the proc. brevis.

Another reason why the proc. brevis, from a mechanical point of view, offers a favorable point of application is that the tendon of the tensor tympani is inserted at a point almost opposite it, and that the function of this muscle is to assist not only in the

vigorous retraction of the membrana tympani, but also in that of the entire chain of ossicles.

In the construction of this instrument special consideration was given to the fact that the chain of ossicles represented an elastic lever, and this was most effectively accomplished by adopting the principle of a car "buffer."

The advantage of such an instrument is that it guards the *proc. brevis* from injury. For, when once brought into contact with the *proc. brevis*, the pressure-probe is easily retained in place. By means of the spiral spring contained within the handle of the instrument the desirable number of vibrations can be executed.

In the healthy ear the entire chain of ossicles, from malleus to stapes, is thus put in vigorous vibration, as determined by my experiments on an ear specimen, taken from a normal, healthy adult, described in my earlier communication on the subject.⁶

By these investigations it may also be proven that the entire ossicular chain executes a turn whereby the tendons of this movable axis are forced inwards.

In exceptional cases, where a narrowing of the external auditory canal prevails, the pressure-probe may engage the *proc. brevis* in a deep acute angle, so that the handle of the malleus is forced outward when positive pressure is applied.

This constitutes the principal point of difference in the effects of the pressure-probe from those obtained by the pneumatic masseur and thus enables us, by frequently executed vibrations produced by the pressure-probe, to loosen these adhesive bands, and occasionally obtain marked improvement in hearing with the first treatment; under similar circumstances I have never been able to determine such improvement with the pneumatic masseur.

I also desire to demonstrate how these two methods can be most advantageously combined.

I would observe that the following experiments were made in ears which, *in vivo*, possessed normal hearing, and were further verified by the fact that they were observed in patients at my clinic who died of the effects and sequellæ of unilateral suppurative otitis media.

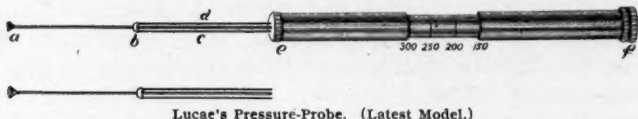
Researches, like Ostmann's⁸, conducted on normal ears, where data are lacking, can possess but relative value. Furthermore, Ostmann verifies my previous claims^{6 and 7}, as follows:

"The application of the Lucæ pressure-sound is especially indicated in those cases of ankylosis of the ossicles where the membrana tympani is relaxed; pneumo-massage should be used where

the membrana tympani is tense and difficultly movably, and especially when it is determined that the application of the pressure-sound produces a tension of the ossicular tendons."

In the course of years I have made numerous modifications and improvements in the pressure-sound, producing an easier, smoother movement of the piston to spare the patient unnecessary pain.

In place of the former guide-tube, where rust accumulated through infrequent use, I substituted a narrow metal frame, *b, c, d*. This frame produces less friction, and small defects can be readily determined and removed, without the necessity of taking the instrument apart (by loosening screw *e*).



I have also graduated the elastic force, estimating same in grammes, and in the latest model (see illustration) a graded pressure, scaled from 100 to 300 grammes, can be obtained by regulation of the screw *f*.*

I convinced myself, by using a pressure of 300 grammes on two normal ear specimens, that the tendons and ossicular bands remained uninjured, and therefore do not hesitate to apply the same force in pathological conditions. I particularly emphasize, however, that in the majority of cases the pressure should be restricted to 100 to 200 grammes; occasionally this may be increased to 250 grammes, and very rarely, where strong adhesions have occurred, I use a pressure of 300 grammes.

I would call attention to the fact that during my experimentation with ear specimens I purposely applied strong pressure to the proc. brevis with a small anatomical tubulus, and thereby ruptured the malleo-incus capsule; such untoward result need not be feared in pathological conditions where the protecting spring of the pressure-probe is brought into use; if, however, the piston is adjusted to the point *b*, whereby it becomes rigid, and rough pressure directed against the proc. brevis, a similar injury may ensue.

* This instrument can be obtained, made according to my directions, of R. Detert, 9 Carl Strasse, Berlin, Germany.

Prior to the application of the instrument, the terminal disc *a* should be covered with a thin layer of cotton fastened with a little collodion. The cotton should be evenly distributed over the surface, and the concavity of the disc also shaped out with a layer of cotton.

Cold is a most useful agent to lessen the sensitiveness of the application; a freezing mixture of ice and salt is prepared, and a ten per cent aqueous solution of cocaine frozen in it; the end of the pressure-sound is immersed in this cocaine solution for several minutes. The cocaine solution should be frozen to the consistency of snow. Occasionally on withdrawal of the instrument from the mixture small crystals will adhere to it, and these assist in producing the anesthetic effect.

Of even more importance than these details are: 1. The fixation of the patient's head, preferably by some form of head-rest. 2. The skill of the operator.

A steady hand and eye are required to apply the instrument to the *proc. brevis*, and a light alternate forward and backward movement of the handle of the probe produces the necessary massage mechanism.

In catheterization, the disagreeable sensations to the patient are soon overcome by repeated applications. I offer the assurance that in the treatment of hundreds of patients, even without the use of the previously described anesthetic, that the application of the pressure-probe is better tolerated than the use of the Eustachian catheter. Sensitiveness varies greatly with the individual, and depends not only on the fretfulness and nervousness of the patient, but also on anatomical conditions.

In general it may be said that the steeper the vertical plane of the *membrana tympani* the more easily tolerated is the application of the pressure-sound. When the *proc. brevis* lies in close proximity to the periphery of the *membrana tympani* (which is frequently the case) it is almost impossible to avoid touching the *membrana tympani* with the probe, and the application becomes painful to the patient. If the position of the *membrana tympani* is nearer the horizontal (fœtal) plane, which occasionally occurs in adults, or if there is considerable retraction of the *membrana tympani*, the application of the instrument is difficult, and the tip of the probe easily slips downward, usually producing small ecchymoses. These slight hemorrhagic points are of but little consequence, yet the treatment must be suspended until they have disappeared. There may also occasionally be a narrowing of the external auditory canal, which likewise offers difficulty in the manipulation of the pressure-probe.

It may be of diagnostic interest to note that in nearly all bilaterally affected cases the sensitiveness to the pressure-probe is greater on the worse ear; this is probably due to the greater impairment of the sound-conducting apparatus and the more resistance offered to the probe; even subjectively this difference in resistance can be determined by the touch of the operator. This is a point of vantage not found in any other form of mechanical massage.⁹

For the continuance of the treatment the local reaction after the first application is our guide. If the probe has been properly applied, we observe, after application of cold, a paling of the area about the *proc. brevis*, soon followed by a characteristic redness, frequently extending to the manubrium, the periphery of the *membrana tympani* and to the upper wall of the external auditory canal. As a rule this redness disappears within twenty-four hours, and the massage can be continued if desired. Should the redness persist for a longer time, as I have frequently observed where small *exostoses* are found near the *proc. brevis* and at the periphery of the *membrana tympani*, the massage treatment must be temporarily suspended.

I have also observed as an objective symptom that a spontaneous profuse lachrymation occurs, even where no pain has been evident during the application; I have not yet been able to determine the cause for this.

Regarding prognosis, we may say in general that the large class of cases in the earlier stages give promise of good results.

Our best results are obtained in cases where a decided improvement in hearing follows the first application, as so often observed in hypersecretory middle-ear catarrh following air inflation.

As the result of many years' observation and rigid testing, I offer a favorable prognosis in that class of cases where the whisper-voice can still be heard at a distance of from one to two meters and where the perception of tones of the tuning-forks in octaves, C to C⁵ is still relatively good. If, in addition, we have Rinné +, we may, in the majority of cases, expect not only a prompt but also a permanent improvement.

With Rinné—, where improvement is not as generally noticed or as permanent as with Rinné +, the treatments must be continued from time to time.

Under Rinne + I do not include the *absence* of Rinné's test, as very seldom noted in cases of far-advanced deafness, but only that class of cases where the interval of hearing for the tuning-fork is shorter over the mastoid (bone) than at the meatus (air); the greater the

difference of the interval in favor of air-conduction, the more favorable the prognosis.

As ordinarily practiced, in determining the relations of bone to air-conduction, the tuning-fork is set in vibration simply by striking it against some resisting surface, and where the differentiation is not very decided, the result is frequently inaccurate. To secure greater accuracy in the determination of these important tests, I use a small, specially-constructed C tuning-fork, with spring-hammer attachment and weighted to prevent overtones.

It has been suggested that an international system of abbreviations should be used in enumerating these results, viz.: M (proc. mastoid) for bone conduction; A (aer) for air conduction; V (vox) for spoken voice.

The time limit for this special tuning-fork, as determined by tests in a large number of normal adult ears, established the following averages: hearing by bone conduction over mastoid process (M), 18 sec.; hearing by air conduction at meatus (A) 50 sec.

To establish the same standard in testing for the tone series in octaves No. C⁵, I use a large C⁴ tuning-fork, constructed in similar manner with spring-hammer attachment; by chance I determined in this larger fork this same standard time limit for air conduction (50 seconds).*

To illustrate, I enumerate three groups of cases where the purposes may be considered respectively (a) good, (b) moderate and (c) unfavorable.

Group I.—Before treatment: Whisper, 2.5 meters; C t. f., mastoid, 18 sec., air 38 sec. After one month's treatment: Whisper, 6.0 meters; C t. f., mastoid 18 sec., air 50 sec. C⁴ t. f., air 43 sec.

Group II.—Before treatment: Whisper (numbers), 1.5 meters; C t. f., mastoid 41 sec., air 20 sec. C⁴ t. f., air 31 sec. After treatment: Whisper (numbers), 4.0 meters. No improvement noted with tuning-fork tests. I have previously observed that where Rinne — is established, the prognosis is less favorable and results unstable. However, in one case I have found improvement, permanent for six years.

Group III.—In all cases where musical tones, especially high-tones, are imperfectly perceived, and where the special tuning-fork, C⁴, is heard but from five to ten seconds, and where the hearing distance for the whispered voice is less than one meter, the prognosis is always unfavorable.

* This tuning-fork may be obtained of R. Deters, 9 Carl Strasse, Berlin, N. W.

There are some cases where the pressure-probe is ineffective and where the immediate use of the catheter produces improvement. Then, too, as considered in Group II, where the application of the pressure-probe, similar to the use of the ear-douche, produces a decrease in hearing; this, however, as determined by Jacobson, is again remedied by the use of the catheter, the resulting improvement being greater than the condition prior to treatment, even also in such cases where the catheter alone had been previously employed.¹⁰

The method of treatment depends upon the individual case. As a rule, where improvement follows the first treatment, the applications should be regularly continued as long as improvement is noted. When improvement takes place more slowly, and where a relatively good tone-perception is indicated, the application of the pressure-sound should be continued for eight to ten days, and the further treatment should depend upon the results of these applications. It is an interesting and striking fact to observe that frequently a single application of the pressure sound results in permanent improvement.

The consecutive number of strokes of the pressure probe varies with the individual case at hand. In the first sitting not more than two to five strokes should be attempted, and this number should be gradually increased in subsequent sittings. Formerly I increased the number of strokes per sitting to 100; recently I have rarely been compelled to go beyond twenty-five. I would also observe that generally the placing of the probe in position causes the patient some inconvenience, but that the vibrations which follow, even where increased pressure is used, are well borne.

The subjective symptoms observed in this technique are similar to those noticeable in the ordinary treatment of chronic hypersecretive otitis media by means of the air-douche. Very frequently, therefore, permanent relief or amelioration of tinnitus aurium is effected; in most cases, however, even where improvement in hearing is definite, the tinnitus aurium remains unchanged; in exceptional cases I have even noted a temporary increase of the subjective noises after application of the pressure-sound.

In conclusion, I desire to record several observations concerning pneumo-massage, which, as before indicated, finds its best application in conditions of rigid membrana tympani. This is most effective when preceded by the application of the pressure-probe whereby the vibrations of the drum membrane can be more effectively and gradually transmitted to the malleus.

Where exclusive pneumo-massage is used, and I refer to the small masseur of Delstanche¹¹, I have noticed distinct improvement in a number of cases of beginning sclerosis; yet I have never found improvement in advanced cases of sclerosis where pneumo-massage is used alone, either the hand-masseur or the electro-motor. These observations have been made during the past three years in a series of cases where, to avoid hyperemia, I have been especially careful to observe the precaution not to insert the masseur absolutely air tight into the auditory canal.¹² In one case in which an air-tight fit of the masseur into the ear was effected, there was a marked decrease in sound perception.

To produce an even pressure in using the masseur I have found it practicable to puncture the rubber fitting of the apparatus close to the ear by a small hole made with a red-hot needle. This precaution is especially valuable where the electro-masseur is used and where the vibratory movement of the drum membrane is rapid. In a number of cases where this accessory opening was not made, the patient complained of lancinating pains in the ear in addition to the noise of the instrument and the tingling sensation. This practical suggestion is also a safeguard against occasional vertigo and occasionally also vomiting, as I have observed it in especially nervous patients, even where no labyrinth complications existed. In one case I have observed that the decided increase in tinnitus lasted for twenty-four hours. In several cases it was curious to observe that the tinnitus recurred after each treatment and was transmitted from one ear to the other. A number of patients complained that they had perceived the noise of the masseur not only in the affected but also in the healthy ear.

It is rational to conclude that in the use of the electric masseur the decided increase in tinnitus and dizziness are due to the rapid vibrations thus produced in the drum membrane and the noises occasioned by the manipulation of the apparatus. These unpleasant sensations were not noticeable when the hand masseur of Delstanche was used.

It may also be interesting to observe that where the pressure-probe was used conjointly with the electric pneumo-masseur, the previously low-pitched roaring sound was followed by high-pitched tinnitus. In the experience of many otologists this change of the tinnitus note has been regarded as a favorable prognostic indication, yet, with the exception of a single case, I have never noted a permanent improvement. In this single case the subjective noises disappeared entirely after a few treatments, but there was no improvement in the hearing.

Summing up all of my experiences in this direction, I believe that eventually our best therapeutic results will be obtained by the application of the simple hand masseur; true, the number of vibrations per second by the application of this instrument are limited, yet, on the other hand, it is free from many of the objectionable features previously enumerated, and has the additional advantage that each stroke of the masseur can be controlled by the hand.

In contrast to the observations herewith recorded, I must refer to the researches of Ostmann; of his use of the electro-pneumo-massage and of his apparently favorable results. The title of his most recent paper is "Curative Results following Vibratory Massage in Chronic Deafness. Author's abstract of paper presented at the Sixth International Otological Congress in London."¹⁸ It sounds less formidable than the monograph itself "Cure, by vibratory massage of the sound-conducting apparatus, of heretofore incurable cases of deafness." As Ostmann's monograph has been published in America (see *THE LARYNGOSCOPE*, January, 1900, page 24), American readers will be able to draw their own conclusions by comparison of our respective observations in this field. I desire to call attention to several essential factors.

Ostmann uses an electric masseur (made by Hirschmann of Berlin) with which he obtains by means of a 2 mm. adjustable shaft and a ten-minute daily application of the instrument, a series of 1000-1200 vibrations of the membrana tympani. In one case the massage was prolonged for twenty-five minutes. He states that of all objective symptoms only a slight injection of the blood vessels about the malleus were occasionally noticeable; there were no subjective symptoms. In contrast to these results I desire to observe that I have used a similarly constructed apparatus (made by Resinger, Gebbert & Schall of Erlangen, Berlin and Vienna) of similar 2 mm. stroke and have continued the application but from two to four minutes, at most five minutes, at each sitting, and notwithstanding all precautionary measures, I have noted frequent intense hyperemia of the membrana tympani and also numerous subjective symptoms.

I would here refer to a case of a lady whom I treated by the combined use of the pressure-probe and electric masseur and who experienced no symptoms of vertigo. This I assume was due to the puncture in the tube of the masseur, previously referred to. This same patient was subsequently treated by another otologist, simply by the electric masseur and the air-tight insertion of the apparatus in the auditory canal, and experienced thereby recurring vertigo. Ostmann claims that massage therapy should never be applied in cases

complicated with labyrinth affection; I would particularly emphasize that this class of patients are included in my brief summary (Group 2) and according to our present knowledge of the subject, should not be classified as labyrinth affections.

From Ostmann's monograph we are unable to ascertain the number of cases which have been considered in his results and conclusions. He reports but four cases on which experimental tests have been made; three of chronic middle-ear catarrh, one of sclerosis. The results obtained were a diminution of the subjective sounds, but in no case was there an entire cessation of same. There was also an improvement of the lower-tone limits and the time-limits of tone perception of octaves C to C⁵ were increased. There is no reference to improvement in hearing for the spoken voice in the first three cases; in the fourth case where, prior to treatment, spoken numbers could be heard in moderate tone and at close range to the ear, after treatment the patient could carry on a conversation at close range when louder voice was used.

Ostmann's assertion that the sound-conducting apparatus can be placed in vibration only by air-tight closure of the instrument in the auditory canal and that the slightest leak or opening would mitigate against massage, is thoroughly erroneous. In 1897 I made the claim¹⁴ that practically just the converse was true, and this leads me to my concluding observation concerning the one point of advantage of the electric pneumo-masseur and that is its value in diagnosis. In a previous communication I have proven that where the Siegle otoscope is not inserted air-tight into the auditory canal the air pressure is sufficiently strong to set up an energetic vibration of the normal membrana tympani. This, in conjunction with the rapidity of strokes or vibrations, as produced by the machine masseur, produces a rhythmic vibratory movement more nearly like the natural acoustic vibrations than can be produced by the old method where the Siegle speculum is inserted air-tight into the canal and where the alternate compression and rarefaction of air is produced by the mouth or hand-pump. Since 1874 I have used a small, hard rubber, pneumatic speculum¹⁵ fitted with a lens of 1½-inch focus, and with this the movements of the malleus and especially the active excursions of the proc. brevis may be easily noted. In the form of deafness here considered it is of great diagnostic importance to determine the relative freedom of movement of the malleus and proc. brevis in comparison to those of the free membrana tympani. These excursions of the malleus may be feeble, and even entirely absent, while the area of the

membrana tympani still vibrates freely; occasionally, as a result of adhesions, the vibrations of the membrana tympani itself may be noted only in spots; at times we may even find cases, complicated by functional disturbances, where neither the drum membrane nor the proc. brevis are seen in vibration. This diagnostic test is also well adapted to determine the improvement in the mobility of the malleus in the course of treatment with the pressure-probe.

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A PLEA FOR AN EARLY OPERATION IN BILATERAL ABDUCTOR PARALYSIS OF THE VOCAL CORDS.*

BY NORTON L. WILSON, M.D., OF ELIZABETH, N. J.

MR. PRESIDENT AND GENTLEMEN: In presenting this subject for your consideration, I am fully alive to the fact that I have nothing new to offer either as to the etiology or treatment of this somewhat rare but serious affection, and my only excuse is the hope that I may impress upon you, as has been impressed upon me, the fact that we must be firm and show our patients the gravity of an abductor paralysis of both cords. I therefore ask your indulgence while I recite my personal observations in this class of cases.

In the winter of 1884-'85 I saw a case in the out-door department of the Bellevue Hospital, and since I have chosen this subject for my paper I have visited that institution with the view of looking up the subsequent history of the case, and much to my astonishment I found that the record books when filled were thrown into a closet promiscuously, and the wealth of statistics buried in the dust. This is also true of other dispensaries which I visited for the same purpose. While I am aware of the amount of labor involved in keeping statistics, it seems to me that the labor already expended on record books is done for naught, if they are not kept in order for future reference.

Dr. E. Harrison Griffen, under whose care the patient came, has kindly furnished me, from his private record, the subsequent history of the case: Male, age thirty-eight, applied at dispensary for attacks of dyspnea. Had syphilis for five years. Bilateral abductor paralysis was noticed. Tracheotomy performed; patient died three months after operation from pneumonia.

I did not observe another case until the spring of 1896, when I saw one in one of the London clinics, the subsequent history of which I know nothing. The third case came under my observation in July, 1896. His sudden death made such an impression upon me that I cannot refrain from endeavoring to impress upon you the importance of tracheotomy or intubation before it is too late.

The history of this case is as follows: Mr. M., age forty-two; nativity, United States; occupation, dealer in lumber and coal; family history, negative; gave a remote history of syphilis and was somewhat addicted to the use of alcohol; has had a few attacks of

* Read before the sixth annual meeting of the American Laryngological, Rhinological and Otological Society, Philadelphia, May 31, 1900.

dyspnea, especially at night, for the last eight months; voice only slightly husky; inspiration a little noisy, but expiration soundless; occasionally had headaches; ophthalmoscope showed nothing abnormal; heart and lungs normal; urine, acid and clear; specific gravity 1020; no albumen or sugar; laryngoscopic examination showed epiglottis to be normal; mucous membrane of larynx normal, vocal cords white with small slit between them during inspiration. The left vocal band was immovable in the median line; the right moved but slightly; the diagnosis of bilateral abductor paralysis was made. After he had been informed of his condition, he told me he had been under the care of a well-known laryngologist, and that he had warned him of his danger, and impressed with the idea that while it was serious an operation was not absolutely necessary.

He was advised that if seized with a paroxysm of dyspnea he must send for a doctor at once, and that it might become necessary to have tracheotomy performed. I endeavored to show him the importance of having an operation performed at once, as it might be too late if he waited until dyspnea came on. He absolutely refused operation and said he would wait. He had been taking biiodide of mercury with strychnia, and local applications of faradism during the winter, and so far as he was able to judge was not much, if any, improved. He returned to my office one week later and still refused operation, because the laryngologist, who had treated him all winter, thought there was some slight improvement. I never saw him again until three months after his first visit to me, when I was summoned to his office, and there found him dead, having died on the street. While walking to his place of business he was seized with dyspnea, sat upon the curb, clutched at his throat and ceased to breathe. A physician, who saw him after death, supposed he had died of apoplexy, and this fact leads me to think that it is probable some of these cases are never recognized, especially as the voice is but little interfered with. No autopsy was permitted.

I now believe if I had insisted upon some operation other than tracheotomy, he might have accepted it and been alive to-day.

He was an intelligent man and discussed the operation of tracheotomy, its dangers and the annoyance he would be subjected to from wearing the tube, and stoutly refused it. I have since thought that intubation, or the removal of a part of one or both vocal bands, so as to establish a continuous tubular opening, as described by our late lamented O'Dwyer in the fourth volume of the Transactions of the Ninth International Congress, might have appealed to him. Dr.

Seaman says that unless objective widening of the glottis be obtained by treatment within a short time tracheotomy ought to be performed without delay. Seventeen of the thirty-four cases collected by Burow were tracheotomized. Tobold had six and opened the trachea three times. Sir Morrel Mackenzie says electricity is seldom of any avail and he above all others considered the cause to be peripheral. In his book he gives the histories of sixteen cases and divides them as follows:

Eight cases due to disease of the post-crico arytenoid.

Four cases due to disease of the medulla.

Four cases due to disease of the recurrences.

He advises early operations.

Von Ziemsen reports six cases only, one of which improved under electrical treatment, but relapsed into its former condition after treatment was discontinued. Under the same treatment he again improved. Of the subsequent history of the case nothing is known, the patient never having returned to the doctor.

Dr. Lennox Browne says Mackenzie counts electrical treatment scarcely a safe procedure, and he also mentions that the only remedial case in which decided improvement took place was that of Von Ziemsen. The benefit was entirely due to the application of the indirect and constant current. This is the case already mentioned by Von Ziemsen, who lost sight of his patient, and we are therefore in doubt as to whether or not the case was permanently benefited.

Anyone who has read the report of Dr. Winslow's case, published in the *Baltimore Journal of Eye, Ear and Throat Diseases*, for January, 1897, cannot but appreciate the importance of an early operation.

Dr. Jonathan Wright, of Brooklyn, reported a case of a woman, aged twenty-six, who died on the very day he had appointed to operate upon her.

There is mentioned a case in Dr. P. Watson Williams' book of a man who died in the Bristol Royal Infirmary before tracheotomy could be performed. Dr. W. Freudenthal also reports a case who died suddenly on the street.

In reply to my query, Dr. F. V. Fitzpatrick, of Cincinnati, reported a case in which operation was refused and the patient died.

Dr. A. C. Getchell, of Worcester, Mass., likewise reports a case of a man thirty-five years old, with history of cured syphilis nine years before; no operation was made and patient died.

Dr. E. L. Shurley, of Detroit, reports death in one case of bilateral abductor paralysis.

In looking up the literature of this subject, I find authorities referring to each other's cases so frequently that it is exceedingly difficult to compute the exact number of cases. I have found recorded eighty-eight cases to which I add the thirty cases reported to me by letter, only a few of which have been published, making a total of 118 cases.

I am fully aware of my ineffectual efforts in reviewing the literature and doubt not that many more cases are on record. It is not my desire to have every case of bilateral abductor paralysis tracheotomized or intubated the moment it comes under observation, but I do feel a personal responsibility in charging you to beware of procrastination, lest the thief of time rob you of your patient. Put the matter decidedly before him and give him no loophole through which to escape. A study of the thirty cases which I have tabulated and appended herewith, shows that fourteen of them were operated upon, while thirteen had no operation and three were lost sight of after the first observation. Of the fourteen cases operated upon ten recovered, one died and three strayed away.

Of the thirteen not operated upon seven recovered, three died and three were lost sight of. Four of these seven that recovered were neurasthenics and should not properly be classed as true paralysis of the abductors, leaving the percentage of recoveries very small—three to ten—when compared to those upon whom operation had been made.

	NUMBER OF CASES.
Mackenzie	16
Burrow	34
Toboldt	6
Williams	1
Ziemsen	6
Schrötter	} 12
Krause	
Fränkel	
Wylie	1
Robinson	1
MacBride	1
Schmidt	} 5
Rosenthal	
L. Browne	2
Jake	1
Lodge	1
Permewan	1
Total	88

I will not weary you by a further recital of the tabulated cases, a list of which I have appended to this paper:

SLIGHT IRREGULARITIES OF THE NASAL SEPTUM.*

BY EDWIN PYNCHON, M.D., CHICAGO.

Professor of Rhino-Laryngology and Otology, Chicago Eye, Ear, Nose and Throat College.

Abnormalities of the nasal septum are among the most common causes of either recurrent coryza or chronic rhinitis. A perfect septum is as essential in a faultless nose as is an erect and solid center pole in a circus tent. In order to thoroughly comprehend the primary cause of a complaint of catarrh or other nasal trouble it is necessary to first have a correct conception of the normal nose both structurally and physiologically. In a previous paper,¹ some time ago, I outlined my understanding as to both, and since then my personal observations, as well as my readings, have only tended to corroborate the belief therein outlined.

In a perfect nose a vertical and practically plane septum should divide it in two passages of equal size though reversed mates in form. Furthermore, at no point should two opposing surfaces ever touch each other, even when the erectile portions of the turbinates are most congested. Thus the inspired air can at all times freely penetrate to all parts of the nasal fossæ so that through evaporation of the watery nasal secretion it is properly humidified. As the anterior half of the inferior turbinal is the most erectile of the nasal tissues it is in this region that the most room is required. Therefore when the turbinal congestion subsides this portion of the passage will seem quite roomy.

Another requirement of equal importance in a normal nose is that the passages shall not be too roomy, as in this case the passing current of inspired air is not so well warmed and humidified. If the nasal passages are not exactly straight, but represent a gentle curve, being otherwise normal, it has been claimed that the requirements of respiration are sufficiently well fulfilled, the same as in the case of a highway, constructed with a series of easy curves and inclines, which serves the requirements of transportation, providing it is smooth and of proper width so teams can pass each other. It must be granted, though, that such a highway, owing to the increased distance from one end to the other, cannot be considered as ideal as in an equally well constructed road made in a straight line

* Read before the fifth annual meeting of the Western Ophthalmologic and Oto-laryngologic Association at St. Louis, April, 1900.

in accordance with the economic teachings of a well-known principle of geometry.

In cases of pronounced deflection, or wherein there is projecting from the septum a large ridge or spur, so as to cause a noticeable diminution in the breath-way of the occluded nostril, there is no dispute among rhinologists as to the desirability of correcting the defect as completely as possible, but in cases wherein there are found slighter defects or deformities there is a difference of opinion as to the justifiability of operative procedures. It is to a consideration of these lesser defects that this paper is addressed, and in their consideration preference will at times be given to common-sense arguments and homely comparisons. Such defects may consist of one or more slight cartilaginous growths upon a vertical septum, or the convexity of a slightly deflected septum, neither of which are abrupt or seem to materially lessen the patency of the nostril at the time of the examination. These prominences alluded to are most often located well forward and not infrequently near the floor of the passage.

As Zuckerkandl² found nearly forty per cent asymmetrical nasal septa in European skulls we may readily understand how slight irregularities are the rule rather than the exception, and, additionally, if their importance in the etiology of nasal catarrh be acknowledged, we have a further explanation for the universal prevalence of this complaint. I have in a previous paper³ called attention to another variety of these lesser defects, to which I gave the name "anterior soft hypertrophies of the nasal septum," and which are easily destroyed by the electro-cautery. Posterior white hypertrophies either side of the vomer also require similar treatment.

Generally speaking, it is only those who have some kind of nasal trouble who submit themselves to a rhinological examination, so we start out therefore with a history of either nasal catarrh or recurrent coryza. In the next place, as we know that the several symptoms indicating nasal trouble are, in a broad sense, all due to some kind of intranasal structural deformity, we are led to search in each nose examined for some structural abnormality which may be the cause of the symptoms complained of. Of course a nasal discharge may come from an inflamed Schneiderian membrane in a nose wherein no structural deformity exists, though this is a phenomenal exception to the rule, and such a case recovers quickly and rarely falls in the hands of the specialist. It is mostly with cases of persistent recurrence or manifest chronicity with which we have to deal.

In the examination made by anterior rhinoscopy the color of the mucous membrane is the first thing observed. A heightened color is most often found upon some one or more points upon the septum which have an increased prominence. Future examinations reveal a continuance of the same intensification of color at the indicated points. The cause of the increased color is chiefly from friction by the to and fro passing currents of air, which necessarily touch with more force any point of septal prominence, making it both dry and irritated. Another way in which even a small growth upon the septum may cause annoyance is by its obstructing drainage, as does a stone in a gutter, when the patient is lying down with that side of the septum uppermost from which springs the growth. In this way secretions are for a time retained, and thus serve as fuel added to the fire by a species of auto-infection. The same may be said of the touching of any two opposing surfaces.

Retained nasal secretions become partially decomposed and cause the mucous membrane at the point of retention to become still further thickened and inflamed, until the secretion itself as there formed is abnormal, the same as the colorless tear of the eye becomes milky when the eye is inflamed.

It has been argued that inflammation causes the obstructive growth instead of being caused by it. While this may be true in the beginning there is no doubt as to the influence of the growth in keeping up the inflammation, as is proven by the subsidence of the inflammation after the destruction of the growth, which is evidenced by a cessation of the symptoms, including the heightened color and discharge.

In view of the teachings of the past it may appear heterodox to advise attacking these slight irregularities surgically, for it has been given out as a sort of rhinological commandment: "Touch not a growth upon the septum which obstructeth not." Therefore the surgeon is decried whose aim is said to be that of trying to "make all noses alike," or, in other words, the surgeon who has in his mind's eye an ideal standard with which he strives to make conform as nearly as practical the several defective noses which come under his care, the same as does the ophthalmologist who, by corrective lenses and otherwise, aims to make the defective eye as nearly as possible like the ideal emmetropic model.

Notwithstanding such edict, and after careful observation, coupled with my understanding of the philosophy of nasal respiration, I am convinced that such practice within reasonable bounds is the only rational practice for the rhinologist to follow, and my clinical experience has often corroborated the correctness of the theory.

While a slight growth, such as is being considered, may not seem to occlude the nostril to any extent whatever when the examination is being made in a warm room, and with the opening to the nostril distended, it must be remembered that when the opposing inferior turbinal becomes congested through exposure to cold it may touch and even press against the growth alluded to. Furthermore, as these prominences are generally well forward, the mobility of the alæ nasi further assists in obstruction during inspiration. Therefore a small prominence well forward is much more harmful than would be a growth of similar size located further back. In fact, as the openings to the nasal passages, both forward and rear, are less in area than is a cross section at any intermediate point, it can be readily seen why a slight enlargement near either end is more obstructive than elsewhere in the passage.

In these cases the stenosis is intermitting, and often alternating, as the opposite nostril is affected by sympathy even though not structurally defective. Noses differ much in size and character, and in one nose a very small growth may in this way cause more trouble than will a similar growth of double the size in another nose. It must meantime be kept in mind that it is only the nose which is giving trouble that is brought to the attention of the rhinologist, and that the indication for operation rests largely upon the annoyance given.

In considering the advisability of operating in such cases let us reason for a moment. Is a large growth upon the septum produced quickly, traumatism excepted? No. Do many cases with ridges or deflected septa give a clear history of material injury? No, only a small per cent. Do we often find a good-sized ridge in a child's nose—say prior to the age of puberty? But rarely. Therefore, as they are frequently observed in adult life, they must have grown since puberty. In fact, is it not probable that they even increase in size during early adult years? Ergo, would not their thorough destruction when first observed avoid the possibility of after-trouble and annoyance? Certainly, and, furthermore, as their removal when small causes much less annoyance than when of large size, we have another reason why operating a small growth is justifiable.

Clinical experience has often demonstrated to me that by the removal of one or more small growths pronounced relief from the complained-of symptoms is given. In fact, I have frequently observed that patients experience a greater proportionate amount of satisfaction and relief after the correction of these lesser defects than do others from the correction of greater deformities. The ex-

planation is that with the latter nature has produced compensatory defects, as, for example, pressure atrophy of a turbinal opposing a septal convexity, though such a change, while apparently giving relief, is worse than the original condition.

What possible harm can come from operating these slight irregularities, particularly as they are absent in case of a perfect septum, which is, as before stated, practically plane? What honest dentist advises delay in the filling of a discovered cavity until the tooth aches? He well knows that the ache will come sooner or later if the tooth is neglected, and that the longer neglected the greater the destruction of tooth substance. In the same way we know that from these slight defects future trouble may be expected. Again, the ophthalmologist has learned that slight ocular defects frequently cause more trouble than do the grosser defects. Thus a slight insufficiency will often cause reflex symptoms while marked strabismus is chiefly objectionable owing to cosmetic reasons, and the progressive amblyopia of the less-used eye is rarely observed by the patient. While correction of the pronounced strabismus is universally approved of, shall not the slight insufficiency be also corrected at the earliest practical moment? Of late years the lesser defects of the eye, as, for example, mild degrees of astigmatism and insufficiency, are carefully searched for and corrected, and from their correction the patient often experiences far more relief than do other cases wherein the defects corrected are much more pronounced.

If in one case the removal of a ridge gives relief from a nasal catarrh, may we not reason by analogy that a future catarrh is liable to occur whenever a ridge is found, even though it may have never seemed to cause annoyance? The ridge often precedes the catarrh by many years, the same as a congenital astigmatism, which may cause no trouble until adult life. Likewise a dental caries may be of years duration before the sensitive part of the tooth is reached so the patient is made conscious of its presence.

It may be asked why these defects of special parts can so exist for years without producing disturbance and then so suddenly and emphatically announce their existence. In reply it may be said that patient Nature often consents to carry a load for years until the time comes for a crash, the same as with the last straw which broke the camel's back. In the case of the nasal trouble the time comes when between swallowing of post-nasal secretions, and the unconscious drawing of the same into the lung tubes, there is slowly produced, on the one hand, a gastric catarrh with its accompany-

ing indigestion and constipation, and, on the other, a catarrhal condition of the lining membrane of the lung tubes clear to the air vesicles, thus producing, as suggested by Ballenger,⁴ a thickening of the same so as to interfere with the osmotic oxygenation and purification of the blood. In this way, from both directions, there comes an auto-toxemia and an impairment of vitality, which is bound in time to tell and to increase one's susceptibility to the effects of either exposure or exhaustion.

As to the surgical treatment but little need be said. I have found it wisest to precede all intra-nasal operations by a few days' medical treatment in the form of local applications in order to reduce the hyperemia to the minimum.⁵ For the operation the knife, the saw or the curette may be used as indicated, singly or successively. When the thickening is low down near the floor a saw curved on the flat can often be used with better effect than can a flat saw. Such curved saws I have had made in pairs, a right and a left.⁶



Fig. 1. Saw Curved on the Flat ($\frac{1}{2}$ size).

After the use of the saw or knife I generally finish up with a burr operated by an electric engine. It is desirable in this way to produce a slight depression in the area operated, which, in the process of healing, will fill up to the proper level. Succeeding the operation daily treatments for about two weeks are of the utmost importance in order to obtain ideal results. At each treatment the wound is to be massaged with a cotton wound applicator, which may be medicated with camphor-menthol twenty per cent or with a ten per cent solution of antinosine in glycerine. The massage for the first two or three days should be gentle, but after that it should be energetically employed. Each daily massage should be preceded by a brief application of cocaine to minimize the discomfort. The massage will remove granulations and debris and will tend to cause absorption of any slight unevenness remaining after the use of the burr, including the inflammatory thickening at the margin of the wound. In this way the wound will gradually become smaller by a process of healing from the periphery toward the center, and

will eventually become smooth and normal in both form and appearance. By omitting the massage after-treatments there is, through the formation of granulations, and the reattachment of partially loosened shreds, a tendency toward reproduction of the original growth. In the case of the convexity of a slightly deflected septum there is usually enough thickness thereof to permit of a little of the prominence being sliced off with the knife or saw or scraped off with the motor burr. By following the operation with the daily massage treatment some improvement is secured, and it has often seemed to be much greater than could be expected from the apparently slight amount of tissue removed. I attribute this to a sort of reaction following the operative attack—an absorption or shrinkage—and the slight extra space thus secured tends to produce a corresponding reduction in size of the opposing turbinal, so the patient experiences more benefit than might be reasonably expected from the moderate amount of work done. Of course, care must be taken to not produce a perforation. As a help before the operation, in order to be doubly assured as to the thickness of the septum, a septometer may be employed.⁷

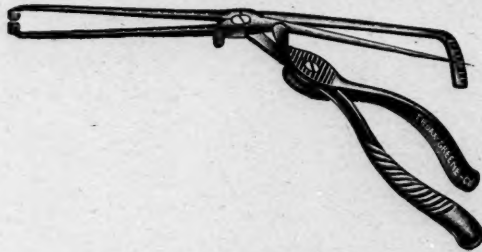


Fig. 2. Author's Septometer ($\frac{1}{2}$ size).

In the process of healing under the massage treatment suggested, the new membrane formed has every appearance of normal nasal membrane, and is in no way a source of after-annoyance, providing the operation has been successful in removing the growth to the normal level and that there are not allowed to remain other irregularities near by. The indication in treatment is to proceed from one abnormality to another at suitable intervals until the nostrils have been made to conform to the plan of the ideal standard.

The conclusion to be deducted from the arguments presented is:
That slight prominences of the nasal septum, which through heightened color of the lining mucous membrane give evidence of chronic inflammation, are to be reduced as nearly as possible to the normal plane of the septum.

Columbus Memorial Building.

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NASAL AND POST-NASAL SYNECHIAE.*

BY PRICE-BROWN, M.D., TORONTO.

The presence of synechia within one or other of the nasal cavities is a pathological condition so frequently met with by every rhinologist that one is almost inclined to doubt the wisdom of taking up the time of the Fellows of this Society in the discussion of such a subject.

It seems to me, however, that the very facts of its frequency on the one hand, and the apparent simplicity of its management on the other, which is more apparent than real, are sufficient reasons for warranting careful attention to the subject.

During recent years many monographs, long or short, have been written upon it; among which I might mention those of Kyle, Moliné, Scheppegrell, Vanzant, Watson.

You, no doubt, are all familiar with these, and the views they express, and I will not weary you by referring to them again. But if by a brief statement of my own views upon the subject, founded upon personal observation, I can create a general discussion, and induce the gentlemen present to favor us with the result of their own personal experience, it is just possible that a condition of things which is so often produced by the operating rhinologist himself, may, from our side of the question at least, be consigned to the limbo of the past, rarely again to arise as a result of the rhinologist's surgical traumatism.

Far be it from me to express the opinion that the majority of cases are the result of our own injudicious treatment; yet undoubtedly many of them are. This may arise from unwise operations, lack of care in after-treatment, or from one cause or other our inability to keep sufficient control over the future progress of the case.

The last mentioned is a point I would like to emphasize before entering more fully into the subject.

Is it not a fact that the comparative post-operative immunity from pain in nasal cases is a condition favoring the development of these synechia? That is to say, the patient after intra-nasal operation experiences so much less pain than he anticipated that he is very apt to consider, the operation once over, that the wound can take care of itself. Hence he forsakes attendance upon the rhinologist long before the parts are perfectly healed.

* Read at the annual meeting of the American Laryngological, Rhinological and Otological Society, Philadelphia, June, 1900.

A synechia may be described as a bony, cartilaginous, or fibrous band, unnaturally connecting together the opposite walls of a cavity. It occurs most frequently between the middle turbinal and the septum. Next between the inferior turbinal and the septum. It may also occur between the lower turbinal and inferior meatus, the middle turbinal and the external wall, or between the two lower turbinal bodies. In the naso-pharynx the synechia is usually found connecting the lip of one or other of the Eustachian tubes to some part of the pharyngeal vault.

Pathologically it is almost invariably either osseous or fibrous in character. The synechia can only be cartilaginous when situated in the extreme anterior region, where the septum lies directly opposite the superior or inferior lateral cartilages; and the condition in this region is so exceedingly rare as to be practically non-existent.

When osseous, it usually consists of solid union between the septum and the outer wall, either of the middle turbinated with the perpendicular plate of the ethmoid or the inferior turbinated with the vomer.

Almost all other synechiæ, wherever situated, are of a fibrous character, the result of inflammatory adhesion between two abraded surfaces. When these abraded surfaces are kept constantly in contact for a considerable length of time, the capillary circulation extends from side to side and the attraction of cohesion finally develops into permanent union, the synechia being the result.

The etiology of the formation of these false bands is a many-sided question. I think it is rarely if ever a true congenital condition. The predisposition may be congenital possibly; but the inflammatory action essential to development of the synechia is scarcely likely to occur during intra-uterine life.

The cause in all cases I believe to be either directly or indirectly traumatic. By directly traumatic I mean direct physical injury of one form or another, either by the surgeon's knife, saw, or cautery, or whatever other instrument he may use in operating upon his case; or from direct accidental injury to the parts themselves.

By indirect traumatism I mean simple abrasion of the surfaces from forcible blowing, when the swollen tissues are either almost or altogether in contact; or abrasion of the surfaces by continuity of contact, as in cases of chronic congestive hypertrophy of the middle and inferior turbinated bodies. In the latter condition, the vitality and resistance of the mucosa is in some cases so materially impaired that the soggy tissues lose their contractile tonicity, and the membrane at the part of greatest pressure becomes so thin that intercapillary circulation is readily developed.

Perhaps of surgical instruments the electro or galvano-cautery is the one of all others, the use of which within the nasal passages is most likely to be followed by the development of this condition.

I do not want it to be understood that I side at all with the wholesale condemnation of the electro-cautery, which is at present becoming the fashion with rhinologists. I fear that with us, as with other men, the pendulum is allowed to swing from one extreme to the other; and we have not yet learned to run the happy mean. I believe that when used with judicious care and precision, and in properly selected cases, there is no instrument more useful in our whole armamentarium. But that does not invalidate the fact of its effect in producing nasal synechiæ.

There are two reasons for this. The first being the escharotic effect produced by the high temperature of the cautery on the wall opposite to the one operated upon. The other, the fact that cautery operations are more frequently followed by temporary edema than are those of any other instrument. Hence, when the chink is narrow, the cautery should not be used unless we can secure complete separation of the two surfaces until healing has been completed.

When operations are performed with other instruments, such as the knife, saw, scissors, chisel, etc., the mucous membrane of the opposite wall should not be injured at all, while subsequent edema of the part operated upon is less frequent; and hence the formation of synechiæ not so likely to follow.

The prolonged existence of turbinal hypertrophy is not an uncommon cause of fibroid or ligamentous synechia. I have observed this as a result in several cases of atrophy of the turbinates; cases in which, with almost complete shrinkage of the middle turbinated body, ligamentous bridges had formed, connecting the lower border with the external wall. The only reasonable conclusion seemed to be that a former hypertrophy had filled the cavity; abrasion had connected contiguous surfaces at the most dependent, and hence most congested parts, and union had become perfect before the subsequent atrophy had commenced.

Cases sometimes come under observation in which no history can be traced, and in which direct traumatism is out of the question. For instance, I have just now a vocalist who came for throat trouble, but had no idea there was anything wrong in her nose. She never had nasal treatment of any kind. In the left nasal passage, two centimetres from the naris, in a wide nasal chamber, a thick band had formed, connecting the anterior inferior end of the lower turbinated to the septum. Query—how did it occur? Healthy mucous mem-

brane all around. Room enough to breathe freely through the passage independent of the synechia. My impression was that during early life the dependent end of the turbinated had pressed against a slightly bulging septum until union had occurred. And when on closer inquiry I found that she was a hemophilia, the case became clear.

In the post-pharynx the pathology and etiology are very similar to what they are in the nasal chambers. There the synechiæ are always of a fibrous or ligamentous character, and the parts connected are one or other or both of the Eustachian tubes to the upper or back part of the pharyngeal vault.

Careless or ineffectual removal of the adenoids may readily be a cause of Eustachian synechia. When a single large central piece is removed the ragged edges are likely to drop down onto the lips of the Eustachian tubes, and if from careless handling of instruments the bulbs have been bruised synechiæ can readily form. We cannot be too careful in our treatment of these cases, and should do our best always to prevent accidents of this kind from occurring.

I believe, however, that in the naso-pharynx the most frequent cause is indirect instead of direct traumatism—the very opposite of its occurrence within the nasal chambers. Perhaps in this variety there is only a single proximate cause; and that is excessive redundancy of pharyngeal tonsillar tissue. When adenoids are excessively developed, it is a well-known fact that severe colds or high febrile action are sometimes accompanied by slight hemorrhage from the naso-pharynx. What more natural than for the hemorrhage to arise from the spongy tissue pressing hard upon the extremities of the eustachian tubes? The abrasion once occurring the continual pressure might eventually result in union.

Be this theory correct or not, I have on several occasions found direct ligaments binding the Eustachian tube to the base of a shrunk pharyngeal tonsil; and in which no operation of any kind had previously been performed.

I might mention here one peculiar case that I saw several years ago. It occurred in a young man, aged twenty-one. He had never received either nasal or pharyngeal treatment. Whenever he attempted to sing, he said the voice sounded as if it penetrated the left ear through the throat, producing a very disagreeable sensation. On examination, I found a shrunk pharyngeal tonsil tightly attached to the posterior superior lip of the left tube by a broad ligamentous band, seemingly counteracting the natural tendency to closure of the tube. The consequence was that the tube being con-

stantly open, the sound of his own voice reached the ear through it, as well as through the external auditory canal. I removed the synechia by curette and digital operation, and the result was perfect relief from the abnormal vocal sounds.

There is one other variety of naso-pharyngeal synechia I would like to mention, and that is a perfectly symmetrical bilateral synechia extending over the vault of the pharynx from lip to lip of the Eustachian tubes. I have seen several instances of this, and in two cases in which the synechia was accompanied by adenoid enlargement I removed as I thought successfully the entire synechia. Within a year, however, in each case, I had the opportunity to examine the patient again, to find, although there was no return of adenoid tissue, there was complete redevelopment of the cicatricial band.

With regard to prognosis. In synechia of the nose, this depends almost entirely upon the attention and time that the surgeon can devote to his case. When the cavity across which the band is formed is wide, the prognosis is most favorable. When the chink is a narrow one, the cure is more prolonged; and without the greatest of care, often unsatisfactory.

In treatment there is a diversity of methods, from Scheppegrell's artistic sweep, with celluloid sound and silk and wire, down to Watson's simple friction.

But I will not detain you with an enumeration of these, but simply speak of the methods I have found the most useful.

In the bony synechia, between the vomer and the inferior turbinated, I have found the saw to be the most useful instrument, choosing one with a strong, wide, cutting edge and narrow back, severing the part first at one side, and then sawing the chink a little wider at the other.

The saw can also be used in middle turbinated osseous synechia, though its limitations are more marked. To keep the parts open I have used cotton wool tampons soaked in albolene—I like them better than gauze, or thin rubber sheeting made wide enough to completely cover the raw surface. By its own elasticity it will usually retain its position. It may readily be kept in place for three or four days or a week without removal. To keep the parts free from discharges, albolene sprays have been used two or three times a day; and the patient has been directed to lie on the opposite side to the one operated upon to favor gravitation.

In removing fibroid synechiæ I have found the knife, scissors or hooked nasal knife the most useful, very rarely indeed using the

cautery. When there is a simple ligamentous band, it can be clipped out at each end by appropriate scissors. When the space is small, and the synechia likewise, the simple sharp hook passed through it from behind forwards will sever the parts and cause a chink.

Any hemorrhage that occurs at the time I always consider an advantage to the patient. These cases almost invariably require the insertion of tampons of one form or other. As I said before, I do not like gauze, but prefer absorbent cotton soaked in one of the hydro-carbon oils, and left in a situ for several days without being disturbed, except to keep the passage above and below cleansed and open.

In some of these cases I have used to advantage the rubber sheeting already referred to, and found it an excellent adjunct.

With regard to the length of time that absorbent cotton can be retained without becoming offensive or producing any injurious effect, I may say that in the case I referred to in the commencement of this paper, I removed the tampon two days ago. It had been in position ten days; the passages above and below having been kept free by the daily use of albolene sprays. The parts were moulded to a proper form, the chink clearly open and the surfaces almost healed, without producing at any time the slightest distress to the patient, or offensiveness of breath.

One point here I want to emphasize, and that is, I do not use aqueous sprays at all in these cases, but hydro-carbon oils thrown through the atomizer by means of compressed air.

In removing post-nasal synechia between the Eustachian tube and the vault, I have used the cautery blade passed up behind the palate with success. Usually, however, I have employed a narrow Gottstein curette and the finger nail. Of course tampons are not required in this region.

SOME REMARKS ON THE ETIOLOGY OF RETROPHARYNGEAL ABSCESS, WITH REPORT OF CASES.*

BY M. R. WARD, M.D., PITTSBURG, PA.

In a circular letter addressed to the profession of Pittsburg, I some time ago asked for a report of the cases of retropharyngeal abscess observed by each physician. I was surprised to learn that many of the older and most careful observers had never met with a single case in all their practice. In my own experience, covering a period of ten years in general practice, I saw but one case, which came under my observation while serving as a resident physician in Randall's Island Hospital, N. Y. During the past year, however, in a period of less than one week, I had an opportunity of observing two cases, both occurring in children, the histories of which are here appended:

Case I.—Clara L., æt. two and a half years, with no history of any previous illness, scrofula or specific taint. Present illness began March 2, 1900, and was attributed to exposure to a draft from an open window when the child was convalescing from a cold, affecting the upper respiratory tract. The following morning, after this exposure, the child was peevish and cross, and held its head in a rigid position, and slightly inclined to the right. There was some fever present. It had great difficulty in swallowing, and took nourishment sparingly. Some change in the voice was noticed, and described as muffled and thick. I was called to see the patient on March 6, 1900, for what the parents thought was an earache. The child was evidently suffering pain, which it referred to the right ear. There was some tumefaction on the right side of the neck, at the angle of the right inferior maxillæ, and in front of the sterno-mastoid muscle. Inspection of the throat revealed an acute pharyngitis. If there was any swelling or tumefaction present it escaped my notice. There was a muco-purulent discharge from the anterior nares, a temperature of 103° F. and a pulse of 140. Examination of the ear revealed an acute otitis media.

I saw the patient again on March 11th, when an examination of the throat revealed a retropharyngeal abscess the size of a hazelnut back of the tonsil on the right lateral wall of the pharynx. This was opened by a guarded bistoury. The breathing and throat

* Read before the sixth annual meeting of the American Laryngological, Rhinological and Otolological Society, Philadelphia, June 1, 1900.

symptoms were immediately relieved. During the following night, however, there was a profuse discharge of pus from the right ear, which was the only complicating circumstance attending the recovery of the patient.

Case II.—M. W., æt. six months, well nourished, with neither the appearance nor family history of any specific or scrofulous taint. Present illness began March 6, 1900, with the symptoms of influenza, a disease which was known to exist at the time in an elder member of the family. There was some cough, and a muco-purulent discharge from the nose, particularly on the right side. The child was peevish and fretful and seemed to suffer pain when disturbed. There was some elevation of temperature, and a corresponding acceleration of the pulse. Inspection of the throat showed a markedly congested pharynx. No rhinoscopic examination was made. The tonsils were slightly hypertrophied. During the following week the patient was seen daily. The head was held in a rigid position and slightly turned to the right side. Any attempt to move the head showed marked evidence of pain. The superficial lymphatics were not noticed to be affected. There was considerable cough and laryngeal disturbance. The voice was husky, thick, muffled, and not unlike the characteristic voice of the adenoid patient. Great difficulty in swallowing was noticed, and the patient absolutely refused to take the breast, but took nourishment, with some difficulty, from a teaspoon or cup. The tongue seemed to be kept almost in constant motion, and in such a manner that the fluid would gravitate forward instead of backward. On the sixth day a swelling was noticed externally on the right side, just beneath the angle of the jaw, in front of the sterno-mastoid muscle. An oral examination revealed the presence of a retropharyngeal abscess on the right lateral wall of the pharynx, in the region of the swelling, which showed externally. The diagnosis was based on the appearance and location of the swelling, combined with a digital exploration of the pharynx. The abscess was opened internally on the following day, and barring some digestive disturbance, the patient made an uneventful and speedy recovery.

Retropharyngeal abscess is an affection seldom seen by the throat specialist. It is confined to no particular age, but is generally considered to be an affection chiefly of childhood. Bokai† has given us by far the most exhaustive study of the disease as it occurs in early life. He reports 204 cases which occurred in a twenty-six years' service at the Children's Hospital, at Pesth.

† *Jahrbuch fuer Kinderheilkunde*, Wien, 1856-58, vol. i, p. 133; 1876, vol. x, p. 108.

The following classification made by him is of interest from an etiological point of view:

Idiopathic	179
Scarlet fever.....	9
Measles	1
Caries of the vertebra.....	7
Abscess of neck.....	7
Traumatism	1

We note that the number of cases classified as idiopathic is largely out of proportion to the other causes. Exception may be taken to the use of the word idiopathic in this connection. To suppose that the disease is so generally a primary condition is hardly in accordance with the present advanced knowledge of scientific medicine—a suppurative process is to be accounted for here as elsewhere in the body. When an irritant or poison enters the system, by a wise provision of nature, it finds lodgement in the lymphatic glands nearest the portal of entrance. We see it in the axillary glands as a result of wounds of the arm; in the inguinal glands as a result of wounds of the leg, chancroid or gonorrheal infection; the cervical glands in scarlet fever, diphtheria, and other inflammatory affections.

The etiology and pathology of retropharyngeal abscess varies somewhat with the age of the patient. In adult life it is very much less frequent and involves the cellular tissues of the pharynx. The pathological process, at this period of life, differs in no respect from the ordinary abscess formation in other portions of the body. It may be due to traumatism, caries of the vertebra, burrowing of pus, or an infective process of a metastatic origin.

When, however, it occurs in infancy, the deep cervical glands are usually at fault. In early life these glands are numerous and of large size and form an uninterrupted chain extending along the lateral wall of the pharynx, in close proximity to the sheath of the carotid artery and internal jugular vein, a fact to be borne in the mind in any operative procedure.

While the strumous habit may figure as an etiological factor, we not infrequently find it in children presenting all the appearance of perfect health. Here we must account for it by some inflammatory or infective process in the neighborhood of the glands affected. The mode of entrance is not always apparent, but in many cases, no doubt, the micro-organisms enter through the lymph spaces, in the mucosa of the naso-pharynx, or the tonsils, whence they may or may not occasion any specific lesion. In health, the local resistance, or as some one has put it, the phagocytes, will be found

sufficiently active to destroy the invaders. But in children, with constantly recurring attacks of nasopharyngitis, the natural resistance is weakened and an acute adenitis results, terminating either in resolution or suppuration. How frequently this occurs is apparent to the general practitioner of medicine, who has the care of children. In this class of patients it is a common occurrence to find the superficial cervical lymphatics inflamed and swollen with every attack of acute coryza, pharyngitis or tonsillitis. These glands, by reason of their location, should be less frequently affected than the deep cervical lymphatics, a fact not borne out by clinical observation. Should this be so, the inference is then apparent that retropharyngeal abscess is, perhaps, more frequent than is commonly supposed or recognized. The disease being essentially, though not necessarily, one of child life, the exact nature of the malady is apt to be overlooked, on account of the mildness of the symptoms which may attend it.

To the casual observer, whose routine examination is limited to an inspection of the fauces and pharynx, an adenitis involving the deep cervical glands would likely escape detection, unless, perhaps, the tumefaction should become pronounced, showing externally or interfering with respiration and deglutition. This I take to be the exception rather than the rule. Few cases, I dare say, end in suppuration, resolution being the usual termination here as elsewhere in the body.

The two cases just reported present nothing unusual from a clinical standpoint. In fact, they may be considered typical forms of the disease as it occurs in early life. Both were accompanied by an acute nasopharyngitis which, doubtless, was the chief and determining cause of the pharyngeal abscess. No bacteriological study was made of either case, a fact much to be regretted, as it would have added greatly to the value of this report.

Park Building.

SARCOMA OF THE NASO-PHARYNX CURED BY INJECTIONS OF FORMALIN.

JOHN A. THOMPSON, M.D., CINCINNATI, OHIO.

Simon L., an Israelite, probably fifty years of age, had a severe hemorrhage from the nose and mouth in August, 1898. The flow was not rapid, but continued for several hours until he was almost exsanguinated. Three months later a similar hemorrhage occurred. In spite of medical treatment he bled to the point of exhaustion. During the third hemorrhage, in February, 1899, he was seen by Drs. Max Thorner and W. C. Harris. Blood had been slowly oozing from the nose and mouth for several weeks. The patient was confined to his bed with a pulse of 120 and temperature $101\frac{2}{5}^{\circ}$. He was semi-comatose. The blood was clotted and had a foul odor. A profuse, offensive, purulent discharge was flowing from the left ear. The doctors found at that time a solid growth obstructing the naso-pharynx. The blood was coming from several points in this tumor.

In April, 1899, the case came under my care. The patient was very weak from loss of blood and from malnutrition. He had chronic indigestion and his ability to assimilate nourishment was very poor. The nostrils were clear. The naso-pharynx was filled by a red tumor with a rough surface. On examination with the finger its point of attachment was found on the posterior wall of the naso-pharynx. At this time the right ear was suppurating. Under cocaine anesthesia a portion of the growth was removed for microscopic examination. The bleeding was controlled by Mackenzie's styptic solution and powdered kino. The microscope showed the growth to be a round-celled sarcoma. Operation was not thought advisable owing to the patient's general condition. I suggested to him injections of one-half per cent solution of formalin into the growth. This treatment was given through the mouth by means of a hypodermic needle mounted on a curved tube. Twenty-five minims of the solution were used each time. The injections caused considerable pain, but this usually was of short duration. Treatments were given at the office twice each week. He used at home a cleansing and antiseptic spray.

When the tumor appeared less vascular, some six weeks after beginning treatment, part of it was removed by post-nasal forceps.

There was no difficulty in controlling the hemorrhage following this operation. When nasal respiration was restored by partial removal of the growth, the suppuration from the right ear, which had been persistent, was easily controlled. The same plan of treatment was continued until the termination of the case. Injections were given twice weekly, and when, by post-rhinoscopic examination, the blood supply of a portion of the growth seemed to be diminished, this part was removed by the forceps.

The case was kept under observation until March, 1900. Then, as there had been no growth in the throat for three months and the patient's general condition was such that he was able to resume his work, he was dismissed from treatment. At the present writing, July 1st, there has been no recurrence of the sarcoma.

The favorable result in this case would suggest the use of formalin injections in other cases of sarcoma of the naso-pharynx which are for any reason inoperable.

SOCIETY PROCEEDINGS.

AMERICAN LARYNGOLOGICAL ASSOCIATION.

(Proceedings continued from page 132.)

Secondary Hemorrhage After the Use of Suprarenal Extract—

F. E. HOPKINS, M.D., Springfield, Mass.

He gave the histories of three cases of posterior exostoses of the septum in which the extract had been used, and in which secondary hemorrhage resulted. The object of the paper was to give the opinions of various clinicians to whom the author had written, as to the liability of hemorrhage under the conditions named. Almost all agreed that there was considerable danger, and that safety required the use of intra-nasal packing after the extract had been employed. In regard to the remedy causing coryza after having been sprayed into the nose, there seemed to be an idiosyncrasy in this respect, and it could not be determined beforehand just who would and who would not be benefited by this procedure.

Bullous Enlargement of the Middle Turbinated Bone—J. PAYSON

CLARK, M.D., Boston, Mass.

The writer reports four cases of this condition. In one case both middle turbinates were affected. The bullous turbinate removed in the second case was of extraordinary size, measuring 37 m.m. in length, 18 m.m. in depth and 17 m.m. in width. All four cases were women, the youngest twenty-two, the oldest forty-five years of age.

But twenty well authenticated cases, which were operated on, have been previously reported, making, with the cases reported in this paper, twenty-four in all. Of these twenty were women, three were men and in one the sex is not mentioned. Seventeen were over twenty years old, three under and in four the age is not mentioned.

In spite of the fact that they occur only in adults, these large cellular turbinates are probably of developmental origin. The ethmoidal cells do not develop until several years after birth and the osseous system often does not cease to develop until the twenty-fifth year. Until this time the various air spaces in the

bones may continue normally to increase in size. The inferior ethmoidal (middle) turbinate normally contains a cell or cells in a certain proportion of cases. A "concha bullosa," generally showing no evidence of an inflammatory process, is apparently simply the result of an excessive growth.

Another theory of the origin of these tumors is that the free border of the turbinate sinus grows outward, upward and inward to form the cell.

There is no satisfactory explanation for finding them, with so few exceptions, only in women. In twelve of the twenty-four cases the cells contained air only, five were complicated by polypi, four contained pus. In only four cases were both middle turbinates affected. The most prominent symptom is headache of a neuralgic character, affecting the fifth pair of cranial nerves. Nasal obstruction is generally present. The diagnosis is not difficult. Feeling with a probe will exclude a polyp or hypertrophy of the mucous membrane. The comparatively normal appearance of the mucous membrane would probably rule out any new growth, while the fragility of the bone would exclude osteoma. Treatment consists of removal with the cold wire snare, conchotome or cutting forceps.

Cyst of the Vocal Cord—J. PAYSON CLARK, M.D., Boston, Mass.

This case is reported because it differs from the usual description of cysts of the larynx and before operation suggested a fibroma. The patient was a man of twenty-five years, troubled with hoarseness and dysphonia for ten or twelve years. On the middle of the right cord projected above the surface an oval, smooth, grayish-white swelling, occupying one-fourth to one-third the length and the whole width of the cord.

This was incised with a concealed laryngeal knife and completely disappeared on the evacuation of a milky-looking fluid. This fluid consisted of degenerated epithelial cells and a few leucocytes. Six months after operation the patient had no difficulty in talking and his voice was tolerably clear. There remain two minute knobs of mucous membrane projecting from the free edge of the cord.

Fibroma of the Larynx—A. B. THRASHER, M.D., Cincinnati, Ohio.

The patient was a woman aged fifty-six years, who had complained of dyspnea and hoarseness. Her family history was negative. The posterior and lateral walls of the larynx seemed to be

the seat of some deposit, so that the true cords appeared pushed in and were defective in abductor movement. A fragment of the mass was taken for examination. The report was fibroma. Iodid of potassium was given in increasing doses, but in a week the patient was seen again and was much worse. After a preliminary tracheotomy with the head dependent and gauze packing, the larynx was split, and it was seen that there was a submucous hypertrophy extending down the cartilage. It appeared to be simply connective tissue. It was removed with the forceps and the patient made a good recovery. The voice was now rough and hoarse, but audible. Two similar cases were described. The rarity of the case consisted in the extensive connective-tissue deposit.

**Singular Exhibitions of Partial Paralysis of the Vocal Cords
Due to Overuse of the Telephone—C. C. RICE, M.D., New
York.**

He said that he would make its title a query, for he desired to obtain the consensus of opinion as to the possible effect of overuse of the telephone on the voice. He had had two cases. The first was a nervous man, aged forty-five years, who had been accustomed to use a desk transmitter with his head in a cramped position. The cords showed evidence of fatigue of the thyro-arytenoid muscles, and there was a loss of sustaining power in the other outer muscles, for the cords trembled and the arytenoid cartilages separated immediately after approximating for phonation. The man was directed to take a rest from business and to use the telephone with head erect so as to afford perfect freedom of the cervical muscles. Recovery had been only partial. The other case was that of a man who was stout and not at all nervous. On the right side of the larynx there was fair adduction. The edge was straight but there was a lack of tension, with an incomplete view of the cord, which was obscured by the overhanging and connected parts. By rest and the assuming of a proper attitude while using the telephone, this patient completely recovered.

**A Case of a Pin in the Larynx for Two Years—Removal by
Endo-Laryngeal Methods—A. W. DEROALDES, M.D., New
Orleans, La.**

The patient was a young girl in whose larynx a pin was found situated on the posterior portion, having pierced the apex of the right arytenoid at its inner side. Its head was embedded more deeply on the right side just above the false cord. Forceps was

applied, the left index finger being placed behind the larynx to steady it. The forceps slipped, but the finger caught the pin, which was thrown out of the mouth. In such cases, when the head of the pin was below, it might at first have passed some way down the trachea and then been coughed upward so that the point engaged. Moreover, the head of the pin impeded its migration, so that it did not move about in the tissues as a needle would. The Röntgen rays might often locate the pin when it was impossible to make out its exact position by the mirror. Another point of interest in this case was a hard swelling in the neck, which was probably due to infection which had stopped short of suppuration.

A Peculiar Case of Migratory Foreign Body with X-Ray Illustrations—D. BRADEN KYLE, Philadelphia, Pa.

The patient was a woman, who constantly complained of a feeling as if a foreign body was moving about under the scalp. She suffered from intense neuralgias, which at times seemed to focus in the mastoid and at other times in the ethmoid or antral regions. In one of these latter attacks there had been a discharge of purulent material from the naris and in the discharge was a piece of a needle. The symptoms continuing, it was concluded that still another piece was somewhere in the tissues, and an x-ray picture was made, showing a dark line in the neighborhood of the antrum, though it was impossible to tell whether the body was actually in the antrum or on the bone corresponding to one of its walls. The antrum was opened and its cavity illuminated, but nothing was found. In a short time a gumboil formed which discharged, giving escape to another piece of the needle. From this time all symptoms disappeared.

Tracheal Injections in the Treatment of Pulmonary Tuberculosis

—T. MORRIS MURRAY, M.D., Washington, D. C.

He gave a short history of the development of this procedure, and then mentioned his personal experience with thirteen cases of pulmonary tuberculosis. In all there was at first a slight explosive cough, but in all the general effect on the cough had been good. No spasm had been noted. The solution used consisted of thyme and eucalyptus oils in olive oil. His experience had been that cough and expectoration had both been lessened, while the temperature had fallen and the general condition had been improved.

**The Correction of the Deviations of the Nasal Septum, with
Special Reference to the Use of Fenestrated Comminuting
Forceps**—JOHN O. ROE, M.D., Rochester, N. Y.

The importance of a normal nasal septum in the human economy is so uniformly recognized that many writers have been led to discuss the subject and many operators to devise different methods for the correction of the numerous deformities to which it is subject.

Nearly every method is found to have its advantages in certain particular cases and conditions, but the method, in the experience of the writer, that meets the requirements of the different conditions in the largest number of cases does not seem to be sufficiently or clearly understood by the majority of operators, and I therefore take this opportunity to again explain its many merits and advantages.

It should be clearly understood at the outset that no one method is equal to all the requirements of every case, for the deformities of the septum are so infinitely varied that it would be as foolish to attempt such a procedure as it would be to attempt to make one tool or implement do every kind of mechanical work.

This method, however (which I have employed for ten years), on account of the mechanical principles on which it is based, meets the different requirements in the greatest number of cases, needing only to be supplemented by other methods, or by the use of special instruments suited to deal with some particular or localized condition, in a limited number of cases.

To classify all the malformations to which the septum is liable is well-nigh impossible. The only satisfactory classification, therefore, is that with reference to the anatomy of the septum. We have, therefore, first, deviations of the osseous portion; second, deviations of the cartilaginous portion, and, third, a combination of the two, a deviation of the anterior part of the osseous portion and posterior part of the cartilaginous portion, mainly at the point where the two are joined, termed the osseo-cartilaginous portion.

Other classifications, such as sigmoid, letter "S," zig-zag, angular deviations, simply describe the peculiar formation of the deviation without reference to its location. Other conditions, such as exostoses, enchondromas, located on one side of the septum only, which give the septum the appearance of being deflected, need not concern us here, for in this connection they demand attention only as associated conditions demanding attention.

With reference to the frequency with which these different portions of the septum become distorted, it is found that the posterior part of the osseous portion is but rarely deviated alone, occurring in not over five per cent.

Next in frequency comes the deviation of the cartilaginous portion alone, found in about twenty-five per cent, whereas, the osseo-cartilaginous portion is found deviated in about sixty-five to seventy per cent.

Thus it is readily seen that a method especially adapted for the correction of deviations of the cartilaginous portion of the septum alone should be employed in but twenty-five per cent of the cases, while a method adapted to the correction of deviations of both the osseous and osseo-cartilaginous portions is of service in about seventy-five per cent of all deviations of the nasal septum.

This method which I first brought before this association in 1892, eight years ago, is based on the principle of a force being applied to one side of the septum between two points of resistance placed on the opposite side of the septum, thereby forcibly indenting the central portion and fracturing it without disturbing or bringing strain on other portions of the septum. In this manner the dangers attending the fracturing of the bone by flat-bladed forceps, like the Adams' forceps, requiring twisting or wringing of the forceps, and consequently lacerating the parts, are thereby avoided.

With the flat-bladed forceps it is only possible to bring the bend up to the median line, which is never sufficient to fracture cartilage and only occasionally bone, and then only when the bend in the bone is great and the blade of the forceps sufficiently wide to bring a large amount of force to bear on the center of the angle. It is only by twisting the forceps that a fracture can be brought about, and the danger of lacerating the septum is readily seen (illustrated by diagrams). It is seen that the moment the blade is twisted the septum must either stretch or be lacerated to accommodate the greater distance of the line of the septum through the center between the blades, whereas, by means of the fenestrated forceps the line of the contour of the septum is made shorter by having the angle or bent portion crowded into it, and it is by means of this sharp bend made in crowding the septum into the opening that fracture of the cartilage is readily produced, and which could not be done in any other manner without laceration of the septum.

By this method quite large bends in the cartilaginous septum can be overcome along with the osseous deflection, and the septum put

in the median line, for it is not only the bone that can so readily be fractured in this manner, but the cartilage as well.

When the deflection in the cartilage is large it is frequently necessary or advisable to incise the cartilage to permit the fragments to slide by each other to compensate for the redundancy.

For this purpose a slender tenotomy knife is best adapted, as it enables the operator to make the incision diagonally through the cartilage, so that the ends of the fragments will slide by each other like the two wedges and at the same time permit a portion of the cut surface to remain opposite each other for union to take place. The greater the redundancy and the greater the lapping of the ends the more oblique should be the incision. In many cases both a vertical and a horizontal incision are necessary, and both should be made oblique to the direction of the septum.

The incision should be made from the convex side with the finger in the opposite nostril for a guide.

In some cases it is unnecessary to cut entirely through the mucous membrane of the opposite side. By carefully cutting the cartilage through only to the perichondrium, the latter can be raised for a short distance with a small elevator passed through the incision sufficiently to admit the outer edge of the cartilage to slide under it.

After the incisions are made, the fenestrated forceps, with medium-sized blades, are introduced, and the base of the fragments fractured and also the deflected portion of the osseous septum.

Thus it is readily seen that by changing the direction of the angle at the osseo-cartilaginous junction and holding the part in position until sufficient ossification has taken place to hold the septum firmly in position, recurrence of the deformity does not take place.

The *modus operandi* of straightening a deviated septum by this method can be briefly summarized as follows:

After the extent and position of the deflection is clearly ascertained the plan of operation is to be determined upon. If we find on the free side of the septum a greatly enlarged middle or inferior turbinated body, as we frequently do, this should be reduced to its normal dimensions, otherwise we would simply transpose the nasal obstruction to the opposite side by straightening the septum.

If we find an exostosis or an enchondroma at the angle of the deflection this should be removed with a saw or cartilage knife. If the deflection is moderate in amount no preliminary incision of

the cartilage is necessary, for the cartilage as well as the bony portion can be readily and sufficiently fractured to overcome all resistance. When this is done an appropriate dressing or support is introduced into the nostril formerly obstructed sufficient to hold the septum in the median line until it becomes sufficiently firm to be self-supporting.

If the operation has been properly performed so that all elasticity or resistance at the seat of deformity has been overcome a support of from four to six days is all that is required.

The Surgery of the Turbinated Bodies, with a New Method of Operating—J. C. BOYLAN, M.D., Cincinnati, Ohio.

The great progress made in dealing with obstructing hypertrophy of the turbinated bodies in a comparatively short period and the good results attained at times by very crude methods, only indicated that, far from being an exhausted field, this was one in which much better results might be hoped for in the future.

After resorting to different methods enumerated, as they were developed by the rapid march of rhinology, with varying success, the writer, having convinced himself by observation of the restricting tendency of the hypertrophy, had resorted with increasing frequency to the removal of larger segments of the excessive tissue, by one smooth operation, and the results obtained had proven so satisfactory that he now believed that, in advanced hypertrophy, so frequently associated with interference of the respiratory function, the judicious amputation of portions of the turbinated bodies would be the operation of the future.

From 111 turbinotomies reported, the following conclusions were drawn:

1. That while in exceptional cases involvement of the whole erectile tissue area may exist, hypertrophy is usually greatest at the anterior and posterior extremities.
2. That the relief of obstruction and the reduction of hypertrophy is accomplished more certainly and scientifically by ablation than by cauterization.
3. That while venous dilation is greatest at the posterior extremities, obstruction is rarely due to hyperplasia at this point alone, owing to the large and straight posterior opening, and hence is frequently relieved by removing coexisting causes of obstruction in front.

The method of operating was with the wire loop which, owing to the clean smooth edge of the cut made by its transverse pas-

sage through the body, the small amount of hemorrhage resulting and the possibility of following the wire with the eye quite to the point to be reached, commended this method so highly that the use of the saw and the scissors was in time restricted to cases in which there was excessive thickening of the bone. A very serious objection to this method, however, was the slipping of the loop so that either failure to engage the tissue resulted, or a much smaller segment than was desired was removed, and this, at times, even when the lateral segment of the loop had been inserted into a previously made short incision dividing the anterior extremity of the body from the side wall. To prevent this accident the point of a fine tenaculum, the hook of which formed a right angle, was buried in the lower margin of the turbinated body at the point of operation; the loop was then passed over its handle, carried into the meatus and so adjusted that it passed behind and was held in place by the back of the hook.

By means of this device it is possible to entirely control the amount of tissue removed, and combined, if necessary, with the lateral incision referred to, amputation can be made with accuracy as far back as the middle of the body. In none of the cases reported was the bone ever seriously crushed with the loop or an ostitis or deformity caused.

The principle involved in turbinotomy is the radical removal of that part of the tissue which is the final cause of obstruction and in which hyperplasia is furthest advanced, leaving the less affected part, which is to perform the function of the body, uninjured by operative procedures. The indication—to remove as little tissue as possible consistent with the freeing of the passage from obstruction to respiration.

If cauterization is sufficient to materially reduce the hypertrophy, the process must of necessity result in the wholesale destruction of the glands so essential to the function of these bodies and a conversion of an already diseased tissue into a cicatricial one.

Hemorrhage from a Peritonsillar Abscess—W. F. CHAPPELL, M.D.,
New York.

Patient was a young man, aged twenty-seven years, who had had several quinsies, the most recent of which had been opened by an incision through the posterior pillar. Half an ounce of pus was evacuated. Five days later there was a severe bleeding. The urine showed albumin and casts. The bleeding recurred, and the abscess cavity appeared filled with clots. An incision was made

through the anterior pillar, and the cavity washed out and packed daily for ten days, at which time the patient was well. Later a rheumatic attack came on without cardiac lesions. The condition of the kidney had continued up to the time of latest observation. When the cavity was opened for washing out, the ascending pharyngeal artery could be seen, but there was no evidence of ulceration. The records of ten similar cases had been found. All had occurred in patients in whom the quinsy had burst spontaneously. In no case had there been immediate hemorrhage. Of ten cases, eight had been fatal. In the two recoveries the carotid had been tied. The lesson from these figures was to open early.

OFFICERS FOR THE ENSUING YEAR.

President, Dr. Henry L. Swain, New Haven, Conn.

First Vice-President, Dr. Henry L. Wagner, San Francisco, Cal.

Second Vice-President, Dr. Arthur A. Bliss, Philadelphia, Pa.

Secretary and Treasurer, Dr. James E. Newcomb, New York City (118 West Sixty-ninth street).

Librarian, Dr. Joseph H. Bryan, Washington, D. C.

Member of Council, Dr. Samuel Johnson, Baltimore, Md.

Place of meeting for 1901, New Haven, Conn. Date, probably May.

THE LARYNGOLOGICAL SOCIETY OF LONDON.

Fifty-eighth Ordinary Meeting, May 5, 1900.

SIR FELIX SEMON in the Chair.

A Specimen of Acute Edema of the Larynx.

Shown by Dr. Logan Turner. The larynx had been removed from a man *æt.* thirty-four, who died suddenly from asphyxia before surgical assistance could be obtained. He had suffered for some months from hoarseness, but had never had any respiratory difficulty, and had continued working as a stonemason until two days before his death. He then appeared to be in fairly good health and spirits. During the night before his death he had experienced some slight difficulty in breathing, but on the following morning had expressed himself as feeling quite able to go out. After breakfast, however, he suddenly developed dyspnea, and died within half an hour.

Post-mortem examination showed the internal organs healthy with the exception of the lungs, which were tubercular. In the larynx the glottic chink was invisible, owing to marked edematous swelling of the aryepiglottic folds, arytenoid region and ventricular bands. The epiglottis preserved its normal contour, being free from edema. Further examination of the larynx revealed almost complete destruction of the left vocal cord, and some superficial ulceration of the right, while an ulcer of considerable size and depth occupied the inner and upper aspect of the left ventricular band. The case is of special interest as a demonstration of a possible sudden fatal complication in the course of laryngeal tuberculosis, without any previous symptoms of difficult respiration.

Sir Felix Semon said that a genuine edema of the larynx very rarely supervened in cases of tuberculosis. In this case the nature of the edematous infiltration was quite different from the ordinary pseudo-edematous infiltration of laryngeal tuberculosis. He was not aware that such a case had ever been described. Perhaps other members had seen similar cases?

Mr. Waggett had seen a case of sudden death from asphyxia occurring in the course of tubercular laryngitis, in the case of a woman suffering from myxedema.

Dr. Herbert Tilley cited the case of a young girl who was under treatment for tubercular laryngitis, in which difficulty of breathing was a prominent symptom. She died suddenly of asphyxia before surgical aid could be procured.

Dr. Watson Williams could recall two cases in which there had been considerable localized true edema of the larynx in the course of laryngeal tuberculosis; but it was never so extensive in either case as to cause a fatal result.

Dr. Turner (in reply) was glad to hear the remarks which had been made, because he had looked into the literature of the subject for the past twelve years, and had come to the conclusion that the case was very uncommon.

New Instruments for the Treatment of Antral Empyema.

Shown by Mr. Acland (introduced by Dr. Watson Williams). Through the kindness of my colleague, Dr. Watson Williams, I am enabled to bring before you to-day some instruments which I have devised for the treatment of antral empyema.

I generally choose to perforate through the alveolar ridge, and these instruments are intended for use in this method.

No. 1. *The borer* is of special size and shape. It cuts the bone of the alveolus very readily when rotated forwards (*i. e.*, from left to right—like a screw), by reason of the fluting or grooving of its edges.

No. 2. *The measurer* may be used to ascertain the depth of the bone traversed before the antral floor is reached. So that if necessary the tube (No. 4) may be cut.

No. 3. *The tube carrier* is a modified screw-driver, on which the antral tube (No. 4) fits, and by which the tube is screwed into the hole made by the perforator.

No. 4. *The antral tube* is a silver-gilt tube which is intended to be screwed into the perforation. It has a screw-thread on its outside, and a slot on its flanged end like a screw-head. In fact it is a hollow screw, which fits on the carrier, No. 3, like a cannula on a trocar. This tube is intended to be worn by the patient during the whole time of treatment, and is provided with a split-pin stopper to keep the food out. The length as supplied is found to be satisfactory for most cases, but in young subjects it may be necessary (after measurement by No. 2) to shorten it with a fine fret saw.

No. 5. *The two-way nozzle* exactly fits the antral tube, and, having a longitudinal septum in it, provides an inlet and exit for the fluids used in washing the antrum.

The *inlet* branch has a modified Higginson syringe attached to it, and the *exit* branch a piece of rubber tubing which conveys the fluid to a receiver. My colleague, Dr. Watson Williams, and I, have each done several cases with this apparatus, and find it very successful.

I may mention that I have found it possible to extract a diseased tooth or root, bore the hole and insert the tube, under one dose of gas.

I have brought with me one of our Bristol students, on whom I had to operate for antral disease, and I propose to demonstrate, with his aid, the advantages of this apparatus in free flushing of the cavity.

Dr. Watson Williams said that he knew from actual practice that the apparatus worked as well as it gave promise of doing in the demonstration. He mentioned a case—the second in which this apparatus had been used; the patient, a child of twelve years of age, had suffered from antral empyema for some years, and the apparatus worked so completely and so satisfactorily, that after a week or two there was no discharge of pus whatever. He had accidentally discovered a method by which the tube might be removed. Feeling that the tube projected too far upwards into the antrum of this patient, he had it shortened and reinserted; it answered very well for a time, but naturally, since it did not project into the antrum, the hole had almost closed over the tube. By allowing the top of the canal to close over, it would be very easy to remove the tube from the lower half and let it fill up. There was no reason to believe the apparatus was difficult to work. He had seen Mr. Acland on many occasions remove a tooth, enter the antrum, put in the tube and stopper during a single "gas" anesthesia, and he had never seemed to have any hitch or trouble in completing the operation before the patient recovered consciousness. For all cases in which alveolar drainage was suitable, Mr. Acland's apparatus appeared to be most simple, comfortable and effectual.

Dr. Dundas Grant thought that if a tube of this sort was inserted for permanent retention in the treatment of empyema of the antrum, it was essential that the tube should be as perfect a one as it was possible to get, otherwise the patient was better without one at all. A good many cases did well without the retention of any such tube, simply having a wire fitting into the hole, and a syringe having to make its way through each time. At the same time he had seen great improvement take place in very obstinate cases of antral empyema, where a permanent tube was employed, although the tube was very far from being nearly perfect. He thought the spiral wire drainage tube, which was left open all the time, very undesirable, for it did not prevent the entrance of material from the mouth, and it acted as a cause of irritation. As far as he was able to judge from the demonstration, he certainly thought Mr. Acland's apparatus was a valuable step in the right direction.

Dr. FitzGerald Powell thought the method of entering the antrum of Highmore through the tooth socket for the cure of empyema had a great deal to be said in its favor. It was necessary to have a good sized opening to allow of free drainage, and to curette the antrum. He was afraid the drills or perforators and tube shown by Mr. Acland were too small to admit of this. He had had drills made which he had used with some success—they were the size of No. 12 to 14 silver catheters—and had used silver wire tubes a size smaller, through which the cavity could be well flushed, and which allowed fair drainage. The method had answered well even in chronic cases, and in one case of three years' standing he got a complete cure. In this case he had had gold tubes, the size of No. 11 catheter, fixed in by a plate attached to teeth on both sides, it being a double empyema. Experience had taught him that the cavity should be curetted, and the tube should extend a good way into the antrum to prevent its being blocked by granulations. Both the tubes for drainage and the perforators were much larger than Mr. Acland's.

Mr. Acland was gratified by the various favorable remarks which had been made by the members of the Society about his little dodge for the treatment of antral empyema.

A New Universal Laryngeal Forceps.

Shown by Dr. Watson Williams. The essential feature of the instrument was the immobility of one blade, which could be placed in position and kept fixed in contact with the growth or foreign body to be removed, while the other blade was opposed by means of the thumb alone, the forceps being held by the fingers. Moreover, the blades could be readily converted from the antero-posterior to the lateral or up and down action, or again a snare could be fitted to it.

Inflammation of Crypts in the Mucous Membrane covering a Defined Recess in the Roof of the Naso-Pharynx, Giving Rise to Otagia and Other Symptoms.

Shown by Dr. Jobson Horne. The patient, a man æt. twenty-five, for three or four months previous to his coming under treatment had experienced pain in the left ear, likened to "a gathering," and his hearing had become impaired.

Clinically nothing was found in the ear itself, or in the mouth or fauces, to account for the pain. By means of posterior rhinoscopy, however, small circular, sharply punched out crypts or depressions, not larger than the bore of a No. 1 vulcanite Eustachian catheter,

were detected in the outermost part of the roof of the naso-pharynx, directly above the cushion of the Eustachian orifice and the arch of the posterior naris; one on the left side contained pus, and the edges were inflamed and gave the appearances of an ulcer.

Dr. Horne also showed some anatomical preparations of the region mentioned, in order to demonstrate the area he wished to define. This may be described as a secondary dome in the roof, immediately above the outer part of the arch of the posterior naris and the cushion of the Eustachian orifice, and enclosed in an arc drawn from the extreme base of the vomer to the summit of Rosenmüller's fossa. The mucous membrane covering this dome or recess has at times, and more often in elderly and thin subjects, a cribriform appearance, occasioned by the mucous membrane being carried in between the separated and superjacent fibres. Purulent matter may readily find its way into one of these crypts and set up a localized inflammation, and occasion the symptoms in illustration of which the case was shown.

Under treatment the symptoms had completely disappeared, and the hearing was restored to normal, so that the ulcerated appearance was no longer visible, but the crypts which contained the pus could be readily seen. The treatment had consisted of nasal douching, and a mixture containing quinine and iodide of potassium; but there was no evidence suggesting lues.

Dr. StClair Thomson thought that Dr. Horne had withdrawn the term ulceration entirely. There was no ulceration at the present time, although some of the members were still of that opinion. The case was very interesting as being a pendant to the case he (the speaker) had shown at the previous meeting, and to that shown by Mr. Chas. Heath at the March meeting of the Society. Mr. Heath had called attention to so-called "sinuses" in the naso-pharynx. What was visible in the present case was the remains of Luschka's tonsil, with adhesions which crossed to the Eustachian tube and intervening lacunæ. If the remains of adenoid tissue were thoroughly removed with the curette, in all probability all the symptoms would disappear. He ventured to suggest that some of the changes in the anatomical specimen were post-mortem ones. The specimens showed the lacunæ he referred to.

Dr. Jobson Horne thought that the anatomical specimens which he had shown were to prove that Dr. Thomson's theory was not altogether tenable.

A Specimen of a Curtain Ring Removed from the Pharynx of a Child.

Shown by Dr. Lambert Lack. The ring was an ordinary brass curtain ring, about one and a half inches in diameter, and about the thickness of a small Eustachian catheter. The upper part of it was free in the post-nasal space, the lower part free in the lower pharynx behind the arytenoids, the sides being firmly embedded beneath the mucous membrane of the lateral walls of the pharynx. Under chloroform the upper part of the ring was forcibly pulled forwards from behind the soft palate, and the lower part then, with some difficulty, cut through with bone forceps. This latter part was opened out by the fingers, and the ring extracted easily by pulling upwards. The history was that the child, who is now nine years old, swallowed the ring at nine months of age. There was much choking, etc., at the time, and the child was taken to a hospital where, after examination, the mother was told there was nothing wrong. The symptoms had gradually passed off, and the child had enjoyed fair health, being brought to the hospital recently on account of adenoids.

Two Cases of Nasal Polypi Treated by a New Radical Method, with Microscopic Sections of the Bone Removed.

Shown by Dr. Lambert Lack. The first case was a female æt. twenty-five, who had suffered from purulent nasal discharge and polypi on the left side for three or four months. The polypi had been twice removed with the snare, but without much improvement. On examination, several large polypi with pus exuding between them were seen in the left middle meatus. Under gas this region was thoroughly and firmly scraped with a large ring knife (Meyer's adenoid curette), and many polypi and loose bits of bone were removed. A large cavity was excavated in the lateral mass of the ethmoid. The patient made an uneventful recovery, the nasal obstruction was completely removed and the purulent discharge ceased. In about a month a large dry cavity could be seen in the upper part of the middle meatus, and there has been no return of the disease and no other treatment. The operation was performed eighteen months ago.

The second case was that of a man who had suffered from polypi in both nostrils for many years, and had undergone numerous operations with only temporary benefit. Although the polypi had been recently removed, very large masses of polypoid tissue, large fragments of bone, and degenerated mucous membrane was scraped away under general anesthesia from both nostrils. As far as could

be judged almost the entire ethmoid, with the exception of the cribriform plate and lamina papyracea, were removed. The operation was performed only six days ago; the patient has recovered well, and states that he has lost the constant headache and sense of fullness at the top of the nose from which he had previously suffered, and feels "clearer" than he ever did.

The microscopic sections show extensive changes in the bone removed. These are of the nature of a rarefying osteitis. The periosteum is much thickened, especially in its deeper layer, which consists of rows of large nucleated cells. The surface of the bone is ragged from the formation of numerous little bays, which are filled with very large, often multinucleated, cells. The bone cells are larger and more numerous than normal, especially where the bone is invaded. In places the changes have advanced so far that the bone is entirely broken up into fragments, surrounded by osteoclasts, and evidently undergoing absorption.

Mr. Waggett wished to avoid on this occasion entering upon the vexed question of the primary lesion in cases of nasal polypus. It was, however, desirable to insist upon the well-recognized fact that in advanced cases the bony structures were in a state of rarefying osteitis, and often so far deprived of their lime salts as to be flexible and semi-transparent.

Mr. Parker supported Dr. Lack's operations in these cases. He had watched many of his (Dr. Lack's) cases carefully during the last two or three years at the Throat hospital, Golden Square, and he had himself been doing the same operation with results very much better than any other method of treatment would have given as far as he could see. He was now coming to the conclusion that cases of multiple polypī with suppuration had much better be treated in this way; under the more conservative methods of treatment, the polypi had to be removed time after time, which constituted a frequent nuisance to the patient, the suppuration continued, the polypi recurred, and finally, one had no other course but to proceed to a more radical operation in a large number of cases. The method of the operation as performed by Dr. Lack seemed fairly free from danger. Dr. Lack recommended the biggest ring knife of Meyer in the first instance, and after that the small ring knife to finish up with; thus performed the operation did not seem likely to give rise to much danger by encroachment on the dangerous regions. The great point was to make quite sure of removing all the crumbling and diseased portions of the ethmoid bone, and to get rid of the degenerating mucous membrane; if that were done, the results, as far

as he had observed in his own cases and those of Dr. Lack, had been very good indeed.

Dr. Scanes Spicer also supported very strongly Dr. Lack's procedure in suitable cases. He had done it for years himself with similar good results, and congratulated Dr. Lack on the prolonged immunity from recurrence. He thought, however, the disease was not quite eradicated here; there were two or three small "buds" on the left middle turbinal, and the anterior portion of the opposite middle turbinal body appeared to be undergoing polypoid degeneration. In spite of this the results were very satisfactory, because there was no substantial recurrence for eighteen months, which would have taken place if the extensive polypoid degeneration of the middle turbinate body had been treated by simple snaring of individual polypi.

Dr. Dundas Grant thought it would be a pity if the radical operation, such as described by Dr. Lack—excellent as it was in suitable cases—should be looked upon as the routine treatment of multiple polypi. If this turned out to be the case, it would be a decidedly retrograde step in rhinology. They had advanced a great deal in delicate intra-nasal manipulations, and therefore they should all the more be very jealous of any principle or method of procedure which tended to interfere with progress in that respect. He had seen many cases in which the persevering removing of polypi as they recurred resulted in a complete cure; first of all there was a longer and longer interval between the recurrences, and then finally complete cure. It was sometimes necessary to remove the anterior half of the middle turbinal body, which was done *secundum artem* with very much less laceration than would be produced by the ring knife. He would urge a strong plea for the thorough trial of the more delicate manipulatory treatment before such radical measures were adopted. He had not the slightest doubt that there were cases in which nothing short of the operation described by Dr. Lack was of any use, but from his experience, their frequency was of the slightest possible. Cases of his own might have "strayed" from his observation and care, and got into the hands of more radical operators, but he must say for the present he saw very great reasons for persevering with the more conservative treatment.

Dr. Permewan did not think the discussion would be complete without the remarks of Dr. Grant. He, personally, was bound to say he was entirely in accord with the words of the last speaker. It seemed to him that there were two great objections to making this method of operation anything like the routine treatment. First of all, there was

the great risk incurred, and secondly, the fact that you can never be quite sure of having removed the whole of the disease. It was true a previous speaker had insisted on the careful removal of the whole of the crumbling bone, together with the disintegrating mucous membrane, but he did not see how you could be sure of having taken it all away; consequently one great argument in favor of this treatment disappeared. The risk of it must be more or less considerable. He should think that any violent interference with the ethmoid bone might produce injury elsewhere than at the spot at which you wished or intended. In supporting Dr. Grant, he would say that he believed in the majority of cases that nasal polypi, subjected to a carefully protracted and repeated treatment, would in the long run be practically cured, if you could induce the patients to come back often enough to have them treated; he hesitated to use the word "cured" without an epithet, in face of the results of Dr. Lack's operation. There was one other point he wished to add. It was odd when reflecting on the great number of times that this operation had been performed by various speakers that these two cases now under discussion were the only two shown to the Society at the present time, and that it should be thought necessary to congratulate Dr. Lack on the unusually favorable termination to the cases. He thought that showed that such radical results were not obtained as one was at first apt to imagine. Nor did he think in these two cases that the tendency to polypus formation had disappeared. On the contrary, on both sides there are to be seen signs of recurrence. Personally, he had had no experience of this operation, but he should, after hearing what had been said by other members, consider it in exceptional cases with a view to doing something of the kind; the warning should be borne in mind that the treatment must not be rashly undertaken, though it might, after all, be necessary in some cases.

Mr. Parker said, "I said I was almost coming to the conclusion that in cases of *multiple polypi* with suppuration this would probably be the best treatment."

The president said that he thought too big a subject had been entered upon in what was only intended to be a casual discussion, particularly in view of the many cases which still remained to be discussed, and of the lateness of the hour. It, however, seemed to him an excellent subject for a general discussion by the Society, and he hoped that it would recommend itself as such to the Council. Personally, he would only say that there seemed to him quite a host of questions connected with this subject: (1) Did nasal polypus arise from disease of the mucous membrane, or of the bone? (2)

Was it possible that in some cases there was the one, and in others the other origin? (3) Why was there in some cases (in his own experience in a small minority only) suppuration connected with the existence of polypi, whilst in others, and indeed in the great majority, it was conspicuous by its absence? These questions seemed to him an excellent basis for a general discussion. He agreed with Dr. Grant that the radical treatment recommended by Dr. Lack ought not at present to be taken up as routine treatment, seeing (1) that all the questions he had mentioned had not been solved, and (2) that, according to his own personal experience, in the great majority of cases, if the patients presented themselves periodically and regularly for examination after a thorough removal of the polypi, ultimately the disease reappeared at longer and longer intervals, and finally and by no means exceptionally only, did not recur any longer. A cure, of course, could never be promised, in view of the fact that sometimes, even after an interval of five years or more, a fresh recurrence took place; but it remained to be seen whether a similar recurrence was entirely excluded by the radical treatment proposed by Dr. Lack. In conclusion the president said that the whole discussion had revived in a very interesting manner the controversy which, many years ago, had taken place between Dr. Woakes and Dr. Sidney Martin, about the changes seen under the microscope in the specimens removed by the former. No agreement, it would be remembered, was at the time arrived at as to whether the changes in the bone were of a primary or of a secondary nature, yet this was a question of prime importance. Could Dr. Lack, he wondered, advance the disputed point, since the adoption of his radical treatment seemed to him to mostly depend upon that very question?

Dr. Lambert Lack, in reply, said that the controversy between Woakes and Sidney Martin was entirely over the clinical features of the disease, and that Martin had never retracted his statements as to the pathological changes found in the bones removed by Woakes. As to whether the bone disease was primary, and the cause of polypi, or whether it was secondary to changes in the mucous membrane causing the polypi, he thought this question could be very well answered by the results of treatment. If one removed the polypi and left the bone, the polypi recurred, but if one removed the bone at the same time as the polypi, the latter did not return. The speaker had operated upon over fifty cases in the last five or six years, and that had been his experience. He quite agreed that in a large number of simple polypus cases a cure could be obtained with the snare if treatment were persisted in for a sufficiently long time,

but even in the simplest cases he thought a successful result was more quickly obtained if one succeeded in passing the snare round the piece of bone from which the polypus was growing, and in removing both at the same time. If this failed in these simpler cases, he was in the habit of subsequently clipping away the bone with cutting forceps. But in the severer cases of nasal polypus, and especially in those associated with suppuration, such methods were useless. One of his cases had had polypi removed regularly every fortnight for three years, and yet the nose had never been clear; and the man shown to-night had not been able to breathe through his nose for two years, in spite of frequent operations. In such cases he advocated the clearing out of the whole ethmoidal region, by scraping with the ring knife under a general anesthetic; in some cases he had even removed a large portion of the inner wall of the orbit. This method, which removed the whole trouble at one sitting, was surely more advantageous to the patient than the protracted treatment and frequently repeated operations that were otherwise necessary, and which were sometimes ultimately successful; and Dr. Grant's patients would probably prefer it, although it would not give him the same opportunity of acquiring operative dexterity. What some members took to be signs of recurrence of the polypi, was only granulation tissue, which now the diseased bone was removed would shrivel up, and did not require any treatment. Finally, as to the risk, he could only say that having performed the operation as extensively and frequently as he had already said, he had not yet had a result which he could describe as dangerous or serious, and he did not believe the danger was as great as the sum total of the danger resulting from the repeated small nibbling operations.

Case of Chronic Ethmoiditis Simulating So-Called "Cleavage" of the Middle Turbinate.

Shown by Dr. Herbert Tilley. The patient, a girl æt. eighteen, complained of severe pain over the nose and around the right side of the face. The middle turbinal was easily visible, and on its under side was a well-marked swelling, between which and the turbinal a probe could be passed. It was impossible to pass a probe to the outer side of the swelling referred to. Kauffman had stated that such a swelling was pathognomonic of antral suppuration, but the exhibitor thought that while such an appearance was met with in chronic inflammatory lesions located in the ethmoidal region, it was only significant of antral disease when associated with suppuration.

In the present case exploration of the antrum showed it to be free from pus.

Dr. Dundas Grant wished to ask Dr. Tilley which of the structures he saw in the nose he considered to be the middle turbinate bone. The more one saw of the nose, the more excuse one could make for anyone who considered the growth in the case under discussion to be the middle turbinal bone. He had seen many cases of hypertrophied mucous membrane over the uncinate process which resembled exactly the middle turbinate body, and could only be distinguished from it by means of the probe. He thought in Dr. Tilley's case he saw three swellings, viz., the uncinate process, the bulla and the middle turbinate. It was sometimes extremely difficult—and it was only possible by using one of those long, very narrow specula, such as Killian's, for median rhinoscopy—to make out which was which. The question of so-called cleavage was one really of old time, which arose when the minuter knowledge of the anatomical parts of the nose was less familiar than now.

With reference to Dr. Grant's remarks, Dr. Tilley said the middle turbinal was easily visible and could not be mistaken for any other structure. The case was shown to illustrate that it only *resembled* a cleavage of the mid-turbinal, but was in reality only a periostitis in the neighborhood of the uncinate process.

Case of Laryngeal Ulceration.

Shown by Dr. Edward Law. The patient first came under my care on December 29, 1899. He complained chiefly of soreness of the left side of the throat of thirteen months' duration, and of hoarseness of three weeks' duration. For eight months he had also suffered from bad cough, with free expectoration. There was no difficulty in swallowing or breathing, and he considered that his general health was satisfactory. There was no history of syphilis. On examination, a large, deep irregular ulcer was seen involving the left upper edge of the epiglottis. The whole of the larynx was red and swollen, with marked impairment of movement on the left side. He would not remain in London for further observation, but promised to return in three weeks. A mixture containing pot. iod. grs. x, and liq. hydrarg. perchlor. ʒj three times a day was prescribed, along with a pastille of aristol and cocaine.

He did not return until May 4, 1900, but the dose of pot. iod. had been meanwhile increased to grs. xx by his own physician. On examination the ulceration was seen to have destroyed the left

half of the epiglottis, and there was almost complete fixation of the left half of the larynx.

Personally, I believe the case to be malignant, but I should like to have the opinion of the members.

The president particularly asked members with experience of such cases to express an opinion, as the case had been shown with a special request for the opinion of members. Personally, he was afraid it was a malignant growth; it did not look to him in the least either specific or tubercular. There was extensive tumefaction and immobility of the left half of the larynx, and complete loss of the left half of the epiglottis, with considerable enlargement and fixation of the cervical lymphatic glands on the left side of the neck. All this pointed decidedly to malignant disease. Radical operation, if undertaken at all, would have to be very extensive, and the prospect was not good.

Dr. Scanes Spicer hesitated to differ from the diagnosis of the president, who had had more experience than himself in these cases, but the extent of the superficial ulceration in this case, together with the small amount of infiltration, appeared to him to favor the theory of a syphilitic process. There was, besides, the bright red color of the growth and the man's good general health to consider. The condition had existed for several months, and if it was malignant it would (being extrinsic) have had some effect on the man's general condition. It was true there was glandular infiltration, but this might result from the enormous surface of ulceration, which invaded the whole left side of the larynx. The left vocal cord did not seem to be involved in new growth or to be displaced inwards, as would, he thought, be the case, if the ulcerated surface were that of a malignant neoplasm.

Dr. Herbert Tilley had examined the growth with his finger, but was struck by the absence of that induration so characteristic of malignant disease. This fact, coupled with the long history of the ulceration and the excellence of the patient's general health, seemed to throw some doubt on the malignant nature of the case.

Dr. Lack thought it was a typical case of malignant disease. There could not be much doubt with such hard granular infiltration.

The president thought it was quite time that the idea was given up that the presence of malignant disease of the larynx in its early, and sometimes even in more advanced stages, *necessarily* interfered with the general health of the patient. He had seen too many instances of good general health with quite extensive malignant disease

of the larynx to countenance the notion of the regular early co-existence of general cachexia, which, in his experience, as a rule, occurred very late in the progress of the disease.

Case of Ulceration of Epiglottitis.

Shown by Dr. FitzGerald Powell. A male, æt. forty-four, came to the hospital on May 1st to seek relief for deafness and severe tinnitus, which he states came on suddenly four months ago.

On making a general examination of the upper air-passages, the epiglottis was seen to be swollen, very red and congested, and on its laryngeal surface on the right side a considerable patch of ulceration was observed, the rest of the larynx being normal.

A small hard gland was felt in the left cervical region opposite the thyro-hyoid space. On being questioned, he stated that he had some pain in swallowing for two weeks.

He gives a history of having a chancre when a boy, which was treated by local applications, and which healed in three or four weeks. He had no constitutional treatment, and has had no further signs of syphilis.

He is married, and his wife has had eight children, all healthy. He has had severe cough, and has lost flesh during the last four months.

There are no abnormal signs in the chest.

Dr. Jobson Horne regarded the case as tuberculous. It would be as well to have an examination made of the thorax and sputa before deciding that it was not tuberculosis.

Case of Enlargement of Lingual Tonsils in a Woman æt. Thirty-nine, with Secondary Syphilis.

Shown by Dr. Henry J. Davis. The patient came to the hospital in January, looking extremely ill, with ulcerative tonsillitis and marked adenitis. There was a deep kidney-shaped excavation of the right tonsil.

Faucial tonsillar tissue is now almost absent, having been undermined and destroyed by the severity of the ulceration, but if the tongue be depressed or protruded, the lingual tonsils, both of which shared in the general inflammation, though, oddly enough, not in the ulcerative process, can be seen as elevated symmetrical masses rising above the sides of the dorsum of the tongue. They are not so large as they were, though still plainly visible.

The severity of the disease has been aggravated by the fact that even the smallest dose of iodide of sodium produces a well-marked rash with the other signs of iodism. The patient is being treated with mercury, but the rash persists, though the throat is well.

The disease was contracted from her husband, a groom, who also at first had severe throat lesions, ulcerative laryngitis and tonsillitis, with mucous patches on the palate, tongue and lips.

He stated that he was suffering from blood poisoning, resulting from the bite of a vicious horse, but as horses are considered immune against syphilis, I did not agree with his diagnosis.

Case of Growth in the Neck associated with Edema of One Ary-epiglottic Fold.

Shown by Dr. Dundas Grant. A middle-aged laborer came under my observation on May 3, 1900, on account of a swelling on the side of his neck. There is a hard oval swelling at about the level of the thyroid cartilage, with its long axis parallel to the internal jugular vein. It is extremely hard, and is quite movable, both under the skin and on the subjacent tissues, and it does not rise with the larynx during the act of swallowing. Above, below and behind it are isolated enlarged glands. It has taken eight months to develop to its present size, the enlargement being more rapid towards the latter part of that period. There is no pain, no difficulty in swallowing, no affection of the voice or respiration. On laryngoscopic examination the only abnormality perceptible is a slight edema of the right ary-epiglottic fold, and such an inward bulging of the outer wall of the pharynx as to conceal from view the hyoid fossa of that side, while the opposite one is easily discernible. On palpation no hardness suggestive of malignant disease is detectable, although the finger appears to reach the ary-epiglottic fold. There is no apparent dental trouble to account for the enlargement of the gland, which at first sight seems an ordinary indolent tuberculous gland. Associated with this swelling of the adjacent portion of the framework of the larynx, the question arises as to whether the two conditions may not be connected, and that we have to deal with a malignant affection. An opinion on this point is specially requested.

Mr. Spencer thought there was an ulcer in the lateral hyoid fossa. This and the feel of the glands in the neck, and the sickly appearance of the patient, gave most likelihood of tuberculosis. On passing the finger down the gland, there was none of that distinct nodular feel which one expected in cancer.

Dr. Dundas Grant would suggest in the first place a course of iodide of potassium; if that did not produce a marked effect he would recommend excision of the enlarged gland, whether malignant or tubercular.

A Case of Inter and Sub-Cordal Growth, with Hoarseness of Remarkably Sudden Development.

Shown by Dr. Dundas Grant. A man æt. sixty-six came under my care on May 3, 1900, complaining of hoarseness and loss of voice of four months' duration. About Christmas time he was attacked with "cold in the chest," which in a week disappeared; but the hoarseness and aphonia remained from that time to this unchanged. On inspection there is seen on the anterior part of the larynx a pale granular irregular-surfaced growth, which is bilobate, the upper part being rather the smaller, and lying between the vocal cords, the larger and lower half lying below them. It appears to spring from the middle line anteriorly. There is a swelling on the right carotid artery at the level of the left thyroid ala. It is impossible to detach it from that vessel, and it is very doubtful whether it is an enlarged gland, being more probably an irregularity in the shape of the artery.

Mr. Spencer thought the tumor was malignant: It was awkward that it involved the middle line in front, as, if anything were done, no unilateral operation would be sufficient. He advised an exploratory thyrotomy, and removal of the soft parts only on both sides.

Dr. Grant would remove, as suggested by the president, a portion of the growth for examination, and act according to the results obtained. He did not know whether members of the Society would advise removal of the larynx *in toto* in a man of that age, though he was in very good health. The fact of the tumor being in the middle line made a unilateral operation impossible. He thought both vocal cords could be removed without danger.

Case of Pharyngeal and Laryngeal Growth in a Man æt. Fifty-nine—Shown at the March Meeting—with Microscopic Sections of Portion of Growth Removed.

Shown by Dr. Furniss Potter. The section had been reported on by the Clinical Research Association, who stated that it showed "young inflammatory formation—no signs of tubercle or malignant growth."

Dr. Jobson Horne had kindly also examined the specimen and expressed the opinion that "the histological structure in places was undoubtedly that of sarcoma." As regards the clinical progress of the case, the man had, on the suggestion of the President, had the dose of iodide increased to grs. xx, and had been taking this dose since the beginning of March. Looking at the throat it certainly appeared as if considerable absorption had taken place, and the

patient was most decided in expressing the opinion that he felt much more room in his throat, and could swallow with very much greater ease. Dr. Potter said that he had ventured to bring the case again before the Society, as he considered it of interest, by reason of the uncertainty of diagnosis, and the difference of opinion expressed on the microscopic section.

The President suggested that the specimen be submitted to the decision of the Morbid Growths Committee, in view of the difference between Dr. Horne's opinion and that of the Clinical Research Society.

Dr. Turner agreed with Dr. Horne as to the microscopical sections; the character of the cells and blood vessels were distinctly sarcomatous. There was inflammatory tissue as well, and the clinical appearance of the case supported the microscopical diagnosis, even though the patient had improved under treatment.

Dr. Potter said that the evidence for and against a diagnosis of malignant disease seemed to be evenly balanced. He had intended in describing the case to ask for an expression of opinion with regard to the treatment. He himself felt that the progress of the case under iodide of potassium justified him in continuing the drug. He proposed to adopt the suggestion of Dr. Thomson that mercurial inunction should be given for a time.

Case of Laryngeal Growth.

Shown by Dr. Kelson. A man *æt.* 37, a teacher, came complaining of loss of voice of five years' duration and gradual onset.

No history of tubercle or syphilis.

Laryngoscopic examination revealed the presence of an opalescent somewhat granular-looking growth, about the size of a three-penny piece, and corresponding to the anterior and middle parts of the right vocal cord, and preventing the contact of the cords on adduction.

Patient stated that two years ago portions of the growth had been removed at Gray's Inn Road Throat Hospital, with considerable, but only very temporary, relief.

Mr. Spencer asked if the growth could be removed completely by intralaryngeal methods. The growth was very broad, and not pedunculated, and well under the cord. He advised that laryngotomy should be performed; it was quite a trivial operation, and one would have to make only a small opening to remove the growth.

Dr. Grant said the growth was attached below, and not above, the right vocal cord, although the mass of it was above; he had exam-

ined the case with great care, and caught one glimpse of the edge of the vocal cord in its entire length, which showed it must be sub-cordal. The ventricular band bulged over the cord and made it difficult to see the entire edge. The growth might be just below the edge of the cord, and his laryngeal forceps might suffice to remove it completely or sufficiently; that course should certainly be tried before laryngotomy was resorted to. He presumed Mr. Spencer did not mean to divide the thyroid cartilage completely.

Mr. Spencer meant no division of cartilage at all, but a little hole in the region of the crico-thyroid membrane, which would enable one to get in quite well and to remove the growth.

Dr. Powell and other members discussed the case, and expressed great differences of opinion as to whether the growth was attached above or below the cords.

Dr. Kelson thought the growth was above the cord. He was standing by the man at the time other members were expressing the contrary opinion, which greatly surprised him.

The President was strongly inclined to the belief that the growth was above the cord. Would Dr. Kelson bring the case to the next meeting?

Dr. Kelson promised to bring the case again, and if possible to do nothing in the meanwhile.

Case of Bilateral Abductor Paralysis.

Shown by Mr. Wyatt Wingrave. A female, æt. fifty, came to the hospital on Tuesday last, complaining of loss of voice, attacks of difficult breathing and difficulty in swallowing.

The onset was sudden three months ago, without any pain and unassociated with any illness.

On examination the soft palate was almost fixed, the constrictors of the pharynx paretic, and the vocal cords immobile on phonation. The arytenoids moved slightly, but the cords were flaccid, leaving but a very narrow glottis; their edges flapped about with inspiration and expiration.

Beyond some slight swelling of ventricular bands the texture of the larynx was normal. Although sensation of the pharynx and larynx is somewhat diminished, laryngoscopic inspection produces violent inspiratory stridor.

On swallowing, food returns through the nostrils. The voice is not completely aphonic, and the faulty articulation is probably due to palatal paralysis, as tongue, lips and cheeks move well. There are no tremors of the tongue, the papillary reflex and knee-jerks are normal.

Beyond some harsh breathing, a few bronchial rales and the conducted laryngeal sounds, the chest affords no evidence of disease.

She has a pulsus paradoxus, and she has lost weight lately.

The President said there could be no doubt that the patient suffered from bilateral abductor paralysis, more developed on the right than on the left side. There also was unilateral paralysis of the palate. He should give iodide of potassium in the first place, and be guided as to further steps by the progress of the case.

Dr. Grant said the suddenness of the lesion suggested a hemorrhage, but perhaps the history was unreliable.

Case of Ulceration of Larynx.

Shown by Dr. Davis in the absence of Mr. Paget. The man was a soldier who had syphilis twenty years ago, for which he had never been systematically treated. There were no signs of tuberculosis of the larynx. The patient in addition had a gummatous ulcer of the right lip involving the gums—it was first mistaken for an epithelioma, but was now granulating slowly under iodide of potassium; the laryngeal lesions were now also less marked than they were.

Dr. Jobson Horne said that, although there was undoubted evidence of syphilis, he was quite prepared to hear it suggested that there was an element of tuberculosis in the case.

Case of Radical Operation for Chronic Frontal Sinus Empyema.

Shown by Dr. Herbert Tilley. When first seen the patient complained of severe frontal headaches, and discharge of pus from the left nostril, which was completely occluded by polypi. There was no discharge from the right nasal cavity, which seemed in every way normal. Over the left sinus there was a well-marked expansion of the bone, the size of a five-shilling piece, which closely resembled an area of syphilitic periostitis. The patient also suffered from enlarged tonsils and adenoid growths. These and the nasal polypi were removed on different occasions before the external operation was performed. The left antrum contained no pus. The headaches disappeared when the nasal polypi and the anterior half of the left middle turbinal were removed, thus allowing free drainage from the upper sinus. It was quite easy to irrigate the latter by means of a Hartmann's cannula.

Having cleared the nose of pathological products the external operation was performed. An incision was made through the inner half of the eyebrow, curving downwards and inwards to just above

the internal palpebral ligament. On retracting the soft parts a considerable portion of the anterior sinus wall was removed. The cavity was filled with a degenerate polypoid mucous membrane, in which were three definite collections of pus. A large perforation in the septum maintained a communication between the right and left sinuses. The left cavity was curetted free from diseased products, and was then found to be very extensive, passing outwards nearly to the temporal fossa, upwards to the frontal eminence, and backwards about one and a half inches in its deepest part. Some idea of the size of the cavity may be gained from the fact that it was possible to pack into it a strip of gauze two inches wide, of double thickness and three feet ten inches in length. This was removed daily, owing to a discharge of pus which was seen to be coming through the perforation from the right sinus, but which at the operation seemed only to be an extension of the left sinus. Within a week of the original operation the right sinus was opened and dealt with, as the left had been, in both cases a free drain having been made into the nose. Small drainage tubes were inserted into both sinuses and led out of the corresponding nostrils, lateral perforations having been made in the upper part of the tube which corresponded with the lumen of the sinus. The external wounds were stitched up with the exception of the lower inner angles, through which the drainage tube projected. The sinuses were syringed out twice daily for a week with boracic lotion, then only once a day. During the last week of the patient's stay in hospital the right tube was entirely removed, and for the left a V-shaped piece of silver wire was substituted, which could be removed and replaced for syringing.

Exactly a month from the date of the first operation the patient left the hospital with very slight scarring, and has not had any sign of suppuration since.

The case was interesting because of: (1) the large sinuses in so young a patient; (2) the obvious expansion of the anterior wall of the left sinus; (3) the communication through the septum of the two cavities; (4) the absence of any sign of suppuration in the right nasal cavity, although the frontal sinus on that side was full of pus and chronic inflammatory products.

The President congratulated Dr. Tilley on the brilliant results obtained in this case.

AMERICAN LARYNGOLOGICAL, RHINOLOGICAL AND OTOLOGICAL SOCIETY.

SIXTH ANNUAL MEETING.

Held in Philadelphia, May 31, June 1 and 2, 1900.

President's Address—DR. D. BRADEN KYLE, Philadelphia.

He made a plea for more general medicine in specialism, and expressed the opinion that chemical pathology would soon take as important a place in teaching as pathological anatomy and histology. During the past winter he said that he had seen many cases of the grip. He was of the opinion that there was as distinct pathological alterations in this disease as in diphtheria, though they varied greatly with the age and with the individual. He believed that during the inflammatory attack there exudes into the perivascular tissue a peculiar material not unlike that deposited in amyloid disease. In the majority of cases alteratives gave the best results. There was abundant evidence to show that this disease exhibited a strong predilection for the accessory cavities. Transillumination had proved very valuable in this class of cases, though, owing to individual alterations in the shape, thickness and configuration of the walls of these cavities, it could not be considered a means of making a positive diagnosis. Laryngeal tumors had received more consideration in the past year than heretofore, and the method of operating described by Dr. W. W. Keen seemed to him an ideal one. The treatment of diphtheria seemed to have remained about the same; the administration of antitoxin and the local use of Löffler's solution. For operations on adenoids he had found oxygen-chloroform anesthesia simple and convenient. The oxygen is passed through a wash bottle containing the chloroform. Turbinectomy, one of the latest fads, was an operation that had been discarded almost as speedily as it had come into prominence.

Blunt Dissector and Knife for Tonsillar Abscesses; Paracentesis Knife.

DR. NORVAL H. PIERCE, of Chicago, exhibited a blunt dissector for opening peritonsillar abscesses. The knife is for the initial incision where that seems necessary, but it is rarely needed. Having reached the abscess cavity, the blades of the dissector are separated, thus favoring the escape of pus.

The third instrument presented was a peculiar bayonet-shaped paracentesis knife with a curved blade having a notch in which the tympanic membrane is caught. With this instrument the membrane can be taken out readily without the use of any other instrument. The curve of the knife and the notch tend to prevent the wounding of the posterior wall of the tympanic cavity.

Fibromyxomata of the Nose.

Dr. M. D. LEDERMAN, of New York, presented a mass of very large fibromyxomata removed from a young girl who came to him complaining of nasal catarrh. Four of them had been removed at one sitting, and three at another, by using a cold snare. There had been but little bleeding although the operation had been done before suprarenal extract had come into vogue.

A Plea for an Early Operation in Bilateral Abductor Paralysis—

DR. N. L. WILSON, Elizabeth, N. J.

This paper appears in full in THE LARYNGOSCOPE, September, 1900, p. 169.

DISCUSSION.

Dr. Otto Joachim, of New Orleans, added another case to those collected. The patient on coming to him had already been tracheotomized, and was wearing an aluminium tube which was almost worn out. He had made a laryngeal section, and removed both vocal cords. This had been done without much difficulty. He had kept the man under observation until he was able to breathe for half a day with the tracheotomy tube closed. In that condition he had left the hospital, and had not been seen since.

Dr. Arthur G. Root, of Albany, N. Y., said that he had recently seen one of these cases. The patient was a man, about thirty years of age, who had had some difficulty with his breathing for the previous two weeks. The man was found to be suffering from intense inspiratory dyspnea, and examination of the larynx showed bilateral abductor paralysis. He had advised the immediate removal of the patient to the hospital, stating the serious nature of the case, but the man had positively refused to go. However, early the next morning he had gone to the hospital, and had been tracheotomized, and was still wearing the tube. The cause of the condition appeared to be enlargement of the mediastinal glands, probably as a result of syphilis. In this connection he wished to say that tracheotomy was not an operation to be approached lightly as it was sometimes very difficult. In this instance it had been very difficult. The man had been deeply cyanosed for a number of days previously, his neck was thick, and all the tissues

bled very freely. After the insertion of the tube the man had had a slight convulsion, during which the tube had been momentarily dislodged from the trachea. He quite agreed with the author of the paper that tracheotomy was the operation of choice and that it should be done early.

Dr. Thomas H. Halsted, of Syracuse, said that during the past year he had seen two of these cases. One was a male syphilitic, who was taking at the time 500 grains of iodide daily without relief to the dyspnea, which at times became suffocative. Immediately tracheotomy was advised, and agreed to by the patient, but his attending physician so strongly objected that the patient's family had the operation postponed. A few days later the man died suddenly during the night. The other case occurred in a young man without specific history. At the end of two months he recovered under large doses of iodides and without an operation. In this case the dyspnea was never urgent except on exertion.

Dr. Robert C. Myles, of New York City, said that this subject was of serious importance, and the specialist must have the matter settled in his own mind if he would secure that hearty and immediate co-operation on the part of the general practitioner and his patient which is so necessary to success. As to the choice of operation, it was a question between doing tracheotomy and removing a part of the cords. Personally he would favor the performance of tracheotomy first.

Dr. M. D. Lederman, of New York City, referred to a case in which there had been a paralysis on one side of the larynx due to a growth of the thyroid. A surgeon had tried the injection of iodine into the gland, and that night the patient had had a violent attack of dyspnea arising from edema of the larynx. Scarification and the local application of ice had given relief. In another case occurring in a woman, examination had shown at first nothing but slight redness. A few hours later there was marked edema, and examination showed the presence of a considerable quantity of sugar. This case also recovered, without operation.

Dr. Frederick C. Cobb, of Boston, Mass., spoke of a case in which the diagnosis had lain between paresis of the cords and ankylosis of the crico-arytenoid joint. The patient had been put on iodide and admitted to hospital. The condition had become worse and tracheotomy had been done. Every attempt to pass tubes between the cords had failed. It was important to give these patients a good breathing aperture, and he would therefore like to know the experience of those present regarding the effect of removing the cords in these cases.

Dr. J. Solis Cohen, of Philadelphia, was invited to discuss this subject. He said that the subject had been admirably presented, and there could be no doubt that immediate tracheotomy was the best plan. If this were refused, it was an excellent plan to coax the patient to carry with him a tracheotomy tube, for, in case of an emergency the mere showing of the tube to the physician called in hurriedly would be a means of saving life. He had known of two or three such instances. Intubation has the disadvantage of depriving the patient of his voice, and moreover there was a chance of the tube being coughed out. He had had no experience with the cutting of the vocal bands, but this operation also deprived the patient of his voice for the most part, and there was danger from cicatricial contraction.

Nasal and Post-Nasal Synechia—DR. PRICE-BROWN, Toronto.

This paper appears in full in *THE LARYNGOSCOPE*, September, 1900, p. 182.

Nasal Synechia—DR. M. D. LEDERMAN, New York.

This paper will be published in full in the next issue of *THE LARYNGOSCOPE*.

DISCUSSION.

Dr. Sargent F. Snow believed, with Dr. Brown, that the galvano-cautery had its uses, although it had been greatly abused. In his opinion, there were almost unquestionably two elements engaged in the production of nasal synechia—either a bulged or thickened septum, lessening the normal space, or there was an engorged turbinate. If the septal deformities were removed, the result would be good, but in some cases it was difficult to make their removal thorough. In cases in which there was not too much deflection he was in the habit of turning up the membrane, making a three-cornered flap, and cutting out a portion of the cartilage. Myles' cutting forceps would be found useful for this purpose. By taking out a little button-hole from the cartilage and turning the flap down he had secured the desired space without interfering with the integrity of the septum. An engorged turbinate was the result of a local irritant or of some systemic disturbance. In treating these cases it was his custom to advise the patient to take more exercise, and to give remedies which stimulate the activity of the liver. He never used orthopedic appliances in the nasal cavities with the exception, in rare instances, of a plug to control hemorrhage. Since he had given attention to the general health, securing sufficient space and avoiding irritative treatment his results had been decidedly better.

Dr. J. Stucky, of Louisville, Ky., asked if either of the essayists had noticed marked constitutional disturbance following the operation for the removal of synechiæ. In his practice there had been more constitutional disturbance following this procedure than almost any other nasal operation. So marked was this reaction that he seldom operated on these cases now unless they were in hospital.

Dr. Frederick C. Cobb, of Boston, Mass., said that he had made use of all sorts of splints in these troublesome cases, and had finally come to the conclusion that synechiæ were the result of the surfaces being too close to each other; hence the obvious indication was to separate them. Even in the case of ligamentous synechiæ if one took a trephine cutting on both sides, and used it once, it was only necessary to pass a probe at intervals of a few days to secure a good result without recurrence.

Dr. George L. Richards said that for small synechiæ he had been in the habit of using a Teat cutting forceps with rather wide blades. The most satisfactory synechiæ to treat were those in which sufficient space could be secured by the first operation without resorting to orthopedic appliances, as stated by Dr. Snow.

Dr. Frederick T. Rogers, of Providence, referred to a method that had given him much satisfaction. A fresh piece of egg membrane can be placed between the raw surfaces for a period of five days without causing any offensive discharge. It was useful in ulcer cases.

Dr. L. C. Cline said he could not recall having seen a single case of synechiæ which he could attribute to the galvano-cautery, and he thought the criticisms directed against the use of this instrument were unnecessarily harsh. He believed that when one operated, enough of the turbinal body or septum should be removed to give sufficient space. The application of chromic acid or of nitrate of silver should be sufficient if the space were made large enough at the time of the operation.

Dr. Joseph A. White, of Richmond, Va., said that as long as he could get an instrument above the synechiæ, it was always possible to get it below, that then he had no trouble in removing sufficient tissue. By subsequent packing or by the introduction of the gutta percha tissue employed by dentists the parts could be kept apart. This latter material was better than celluloid because it could be readily moulded, and it was equally clean. The cases that particularly worried him were those with dense, osseous adhesions high up between the middle turbinal and the ethmoid plate. He had known them to be of almost ivory-like density, so that the electric saw had

failed to cut through them. He was not disposed to cut from below for fear of doing damage. He had made use of the burr and drill many times, but the osseous band seemed to keep building up until a thick bony mass had formed.

Dr. Myles said that several years ago he had reported a number of cases of synechiæ of the Eustachian tube to the basilar process to the American Otological Society. The operation when done with the finger was often most satisfactory in its results. It was easily performed under cocaine anesthesia, using the index finger. It had been his misfortune to meet with several cases of synechiæ in the nose resulting either from syphilis or from active and persistent efforts on the part of the rhinologists to plow through, or saw out parts of the ethmoid bone and of the middle turbinate. He had seen more less complete adhesion of the ethmoid bone to the septum. One might cut away the ethmoid bone up to the cribriform plate, when attempting to relieve the condition, and yet the result would not be good. These patients were almost invariably neurasthenic, and disposed to complain. The blocking up of the secretions leave these patients in almost a state of constant suffering. With regard to synechiæ of the inferior turbinal, the point was to separate the parts sufficiently either by excision or moving the walls. One naturally desires to move the septum far enough away, but the vomer here offers an obstacle.

Dr. Emma Musson, of Philadelphia, said that Dr. H. B. Douglass has recently shown that the galvano-cautery point should be used at a dull red heat until it had penetrated beyond the epithelial and hyaline membranes, as that microscopic examination had shown that the cautery was peculiarly destructive to the hyaline membrane, and that unless this precaution was observed we would have as a result a broad superficial cicatrix. May not this extensive destruction of the epithelium and hyaline membranes account for some of the cases of nasal synechiæ.

Dr. Price-Brown, in closing, laid great stress on the importance of leaving the nasal plug in the nose undisturbed for a considerable period. He preferred cotton wool and made the plug very small. In the upper region it was highly important to keep the mucous membrane in a normal state. One advantage of the rubber sheeting was that it is elastic, and after having been placed in position exerts constant outward pressure. He had not observed any special systemic disturbance in these cases, probably because he was careful to employ a very small plug, and so not interfere with drainage. Whenever there was a narrow passage it was desirable to avoid

entirely the use of the galvano-cautery. Whenever a tampon is used and retained in position for any length of time it is important to keep the case under observation and insist on regular cleansing above and below the plug.

Dr. Lederman said there could be no doubt about the tendency of the osseous synechiæ in the upper region to reunite, and the attempts to treat them were not free from danger. It was here that constitutional disturbance was apt to occur. If he found a puffy turbinate and much catarrhal secretion he postponed operation until the mucous membrane could be made more healthy. Many authorities make use of Warburg's tincture as a general tonic in such cases.

Some Remarks on the Etiology of Retropharyngeal Abscess, with Report of Cases—DR. M. R. WARD, Pittsburg.

This paper appears in full in *THE LARYNGOSCOPE*, September, 1900, p. 189.

DISCUSSION.

Dr. Richards said that although he had practiced medicine fourteen years he had met his first case of retro-pharyngeal abscess only two months ago. The child had been brought to his office by a physician with the statement that the case was urgent. Examination showed a considerable swelling at the base of the tongue and to the right of the median line. On digital examination he felt a slight but tense swelling. He had inverted the child and opened the abscess with his finger nail, a considerable quantity of pus being evacuated. For a few minutes it had been difficult to get the child to breathe, but it had made a rapid recovery.

Dr. C. W. Richardson, of Washington, D. C., said that he had seen three cases of retro-pharyngeal abscess in children, two of which had been relieved by operative intervention. About six or eight years ago he had seen, in consultation, a child who had a swelling in the neck for a week or ten days. It was supposed to be an inflamed tonsil or an enlarged lymphatic gland. The breathing was very stridulous and the condition of the little patient extremely bad. Examination had convinced him of the presence of pus, and on passing the finger into the pharynx he had detected an enormous swelling extending towards the middle line down as far as the epiglottis. The child stopped breathing at the moment of making the examination, and the father in alarm snatched the little one and ran into another room. The child was heard to cry and gasp, and although he was ordered to bring the child back, he did not do so for a minute or two, and then it was found that the child was dead. This empha-

sized the advisability in these cases of long standing of explaining to the family the possibility of sudden death supervening at the examination or during the operative intervention. There had been no special difficulty either about the diagnosis or treatment of the other two cases. It was difficult to inspect the pharynx of an infant under one year old, and hence these cases were often not diagnosticated at first. In most cases the origin of the trouble was in suppuration of the deep cervical lymphatic glands.

Dr. N. L. Wilson, of Elizabeth, said that he had seen two cases recently. One of them had presented an enormous swelling, the child having been suffering for three weeks before coming to him. The abscess had been quickly opened with a bistoury and recovery ensued. The other case had been sent into hospital for diagnosis, and he had failed at first to make the diagnosis. The child had been kept under examination for two weeks, and had then been referred to a general medical practitioner who had made the diagnosis. The child had then returned to him, and the nature of the trouble had been made clear. In this instance the abscess had originated in tubercular caries of the spine.

Dr. N. H. Pierce said that he had seen two cases. One of them was a child less than one year old, seen at the Post Graduate Hospital. The child was extremely emaciated from inability to nurse, and was on the point of suffocation. For a moment he had been puzzled over the case, for there had been no circumscribed swelling or redness, yet inspection had given him the impression of a fore-shortening of the buccal cavity. The whole posterior pharyngeal wall was pushed forward. On digital examination he had detected slight fluctuation, and he had then made the diagnosis. The ignorant parents would not then consent to the operation, but some days later they allowed him to operate. The opening was made externally. At that time the internal swelling was very large, and he thought it was conservative to estimate the quantity of pus evacuated at over four ounces. The tube was displaced in the dressing, causing another accumulation of pus, whereupon all the distressing symptoms again appeared. The child recovered rapidly after re-establishing drainage. In this case there was no vertebral caries.

Dr. F. C. Cobb said that he had had two cases of retro-pharyngeal abscess at the hospital. In one of these nothing could be seen in pharynx because of the large quantity of mucus accumulated there. On palpation, one could feel a solid mass on the pharyngeal wall, but neither he nor other physicians present could detect any fluctuation for four or five days. The symptoms had grown slowly worse dur-

ing this time, and, of course, immediate relief had been afforded by incision. It was well to examine with the finger quite low down.

Dr. E. E. Holt, of Portland, Me., said that when there was any swelling in the neck, whether the ear had been manifestly involved or not, he made it a point to carefully examine the external ear. If he found the posterior superior part of the canal red and sensitive to the touch he had found almost invariably that the mastoid was involved. He cited a case in which the tonsils and pharynx were extensively inflamed and the swelling in the neck was thought to be due to the inflammation in the throat, but upon examining the ear and finding that the canal was inflamed and sensitive in the posterior and superior part, he gave it as his opinion that the mastoid was involved, although there was no external manifestations of inflammation of the mastoid. The patient was in a critical condition, and he was asked to operate and did so, finding the mastoid broken down and a perforation into the digastric fossa and into the lateral sinus. The patient made an uninterrupted recovery.

Dr. Thomas H. Farrell, of Utica, cited a case in which a large swelling had been found on the left side behind the posterior pillar of the fauces. The two pillars were crowded together so that at first sight the swelling looked like an enlarged tonsil. An incision had been made, but it had been necessary subsequently to enlarge the opening to secure proper drainage.

Dr. T. R. Chambers, of Jersey City, said he had seen only yesterday a little child with what he suspected to be a post-pharyngeal abscess. The only symptom was a peculiar crowing breathing associated with cyanosis on awakening out of sleep. The patient was an infant of about nine months. Palpation was unsatisfactory, and caused marked cyanosis and difficult breathing. No swelling could be appreciated.

Dr. Ward, in closing, said that he had endeavored to show that the disease was more frequent than generally supposed, and one met with more often by the general practitioner than by the specialist. It seemed to him rather strange that an infection of this kind of the deep lymphatic glands should so seldom lead to retro-pharyngeal abscess. He saw no good reason for resorting to the more formidable external operation.

ABSTRACTS AND BIBLIOGRAPHY.

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EDITORIAL STAFF.

It is our purpose to furnish in this Department a complete and reliable review of the world's current literature of Rhinology, Laryngology and Otology.
Authors noting an omission of their papers will confer a favor by informing the Editor.

I. NOSE.

Congenital Atresia of the Choanæ—J. Moutf.—*Archiv für Laryngol.*, Band x, Heft 1, 1900.

Körner's view that deformity of the superior maxillary and the bony structure of the nose depend on obstructed nasal breathing seems to have been contradicted by recent investigators. Fränkel has shown that a highly arched palate, septal deviation, anomalous position of the teeth, and a V-shaped upper alveolar arch, stand in no relation to the presence of a pharyngeal tonsil. H. Haug says that 28.6% of the cases of congenital atresia of the choanæ have a normal palate, the prevailing opinion being that these abnormalities depend on racial peculiarities of the skull, and not on extra-uterine nasal obstruction.

The author gives the history of a case of his own where the left nostril was entirely occluded by a partition part bony, part membranous. The palate was highly arched, but the asymmetry was not marked, the right side being nearly as high as the left, in spite of the fact that the right nostril had always been freely open. The author is inclined to think the high palate more due to the general condition of leptoprosopia than to the nasal obstruction.

VITUM.

Ozena—F. SIEBENMANN-BASEL.—*Correspondenzbl. für Schweizer Aerzte*, March 1, 1900.

An elaborate paper which goes into the pathology of the disease to a considerable degree. The characteristic atrophy of the turbinal bones depends on an easily demonstrable lacunar resorption. The metaplasia of the mucous membranes consists in a conversion of the cylindrical into squamous epithelium. In severe cases the membrane takes on the characteristics of an epidermis-like structure. The glandular epithelium atrophies and the efferent ducts become widened. The cavernous tissue loses its muscular elements and the power of distension is lost. The number of the blood vessels is, however, not diminished. This metaplasia is found in cases of narrow-nosed individuals, but the genuine ozena is almost always confined to individuals with broad, low noses (platyrrhinia). It is evident, therefore, that this latter form of the nasal organ is most favorable to the development of the disease.

As to treatment, the author is not enthusiastic in regard to many plans that have been advanced, but thinks that painstaking cleanliness will accomplish all that we can hope for.

VITUM.

II. MOUTH AND NASO-PHARYNX.

Indications for and Method of Operating upon the Middle Turbinated Bone—JOHN P. DAVIDSON—*Va. Med. Semi-Monthly*, March 9, 1900.

The indications which cause a demand for operative procedures upon the middle turbinated bone are as follows:

1. For a large and well-defined class of cases suffering from nasal obstruction.
2. To remove an etiological factor preparatory to and for the further treatment of nasopharyngitis, and chronic laryngitis.
3. For the relief obtained in certain cases of chronic catarrhal otitis media.
4. For the beneficial effects procured in cases suffering from reflex nervous symptoms, either accompanied or unaccompanied by asthma or hay fever.

W. SCHEPPEGRELL.

III. ACCESSORY SINUSES.

Foreign Bodies in the Maxillary Sinuses with Report of a Case—R. J. WENNER, Cleveland—*Cleveland Journal of Medicine*, March, 1900.

The author's case is one of empyema of the left maxillary sinus, perforating the floor of the orbit, allowing pus to accumulate posterior to the eye ball. Pus was also found on autopsy below both lobes of the cerebellum. The floor of the antrum was found necrotic, and a growth the size of a small walnut, involving the hard palate, was reported to be a giant-celled sarcoma. On opening the antrum the curettage brought away a small tooth; another being removed at one of the subsequent dressings.

In response to a circular letter the author received the report of 3,409 cases of antral empyema, of which number less than one per cent were directly due to some foreign body. In fourteen cases teeth were found in the antrum.

STEIN.

Treatment of Empyema of the Frontal Sinus—WINCKLER—*Münchener Medical Wochenschr.*, January 16, 1900.

This paper is written as a protest against adopting any one method of operating in all cases of empyema.

Kuhnt's method, which the author thinks most in vogue, he charges with being connected with too great facial deformity. Under certain circumstances it may be resorted to, but unless there is some special indication for it, we ought to make use of one of the osteoplastic methods like Czerny's or Küster's.

VITTM.

IV. LARYNX AND TRACHEA.

Hysterical Aphonia with Closure of the True and False Rima Glottidis at the Moment of Phonation—ROTH—*Wiener Klin. Wochenschr.*, February 22, 1900.

At a meeting of the Vienna Laryngological Society, held February 1, 1900, the author exhibited a case of hysterical aphonia where at the moment of phonation the false bands were seen to approach each other completely, leaving only a small rounded opening posteriorly through which could be seen a little of the true cords which were apparently also closely applied to each other with the exception of a still smaller opening at their posterior extremity. This condition could be brought about by almost any emotional excitement and could be terminated by a marked irritation of the skin of the front of the neck. The irritation made use of was the faradic current. The author was of the opinion that the condition was brought about by over-activity of the thyro-arytenoideus superior, this muscle bringing the false bands together and bellying them out until they came in contact with the underlying true vocal cords, which latter were thus prevented from vibrating.

VITTUM.

V. EAR.

Acute Necrosis of the Temporal Bone, following Scarlatina Complicated with Diphtheria—HERMANN—*Med. Bulletin*, January, 1900.

Three such instances are reported. The peculiar features of these cases were the rapid progress of the disease; absence of retro-auricular swelling to any degree; a greenish-gray appearance of the bone after same had been exposed; and the extent of the destructive process. The author's conclusions from these cases are: In the course of scarlatinal diphtheria, acute necrosis of the mastoid and petrous processes may occur with complete destruction of the bone. Surgical intervention may be undertaken with some prospect of success. Operation is indicated when, in the absence of all signs of retention of pus, retro-auricular pains supervene, accompanied by very active febrile movement.

LEDERMAN.

The Operative Opening of the Middle Ear in Chronic Suppurative Diseases—VICTOR HAMMERSCHLAG—*Wiener Klin. Wochenschr.*, October 26, 1899.

A careful analysis of 113 cases operated on in Politzer's clinic. The nature of the paper does not permit abstracting.

VITTUM.

VI. DIPHTHERIA, THYROID GLAND, ESOPHAGUS, ETC.

Surgical and Pathological Features of Tuberculosis of the Esophagus, with Reports of Two Autopsies—WILLARD BARTLETT—*Med. Review*, January 20, 1900.

This is an extensive and rather exhaustive paper, to which is appended a copious bibliography. The literature of the subject warrants the author, he thinks, in concluding: 1. That tubercular affections of the esophagus are exceedingly uncommon; 2, that the authors who treat tuberculosis as an entity and dismiss the subject without even a mention of the esophageal lesions, fail to present a comprehensive view of the subject. These lesions are: 1, the tubercle itself; 2, the ulcer; 3, the fistula; 4, the diffuse round-celled infiltration observed in any or all of the structures in the neighborhood of one of the three first-mentioned abnormalities.

The reports of the autopsies are illustrated by photographs and the lesions of the esophagus minutely described, and the author holds that they illustrate at least the tendency to involvement of the esophagus in chronic lymphatic tuberculosis. In neither case did clinical manifestations suggest to the attending physician the possibility of an esophageal lesion. The use of the esophagoscope in every case of pronounced general lymphatic tuberculosis is suggested.

A review of the surgery of the esophagus is given, which shows that all portions of the organ are amenable to surgical treatment and that partial and total resection can probably be done on the esophagus.

EATON.

VII. NEW INSTRUMENTS AND THERAPY.

Treatment of Hay Fever—A. E. ABRAMS—*Annals O., R. and L.*, May, 1900.

The author states that hay fever occurs exclusively in individuals of acquired or inherited neurotic temperament, and for this reason the disorders cannot always be cured by the same remedy or line of treatment any more than a prescribed course of diet and remedies would be applicable to all cases of neurasthenia. In the treatment he lays much stress upon obtaining the co-operation of the patient for a period of time which, in many cases, must be extended over years rather than weeks or months. As the time for the anticipated attacks approach the patients must be warned against all overexcitement or depressing influence. As a tonic the author has found nuxvomica or strychnia more useful than any other medicine. Opium he regards as dangerous, while the bromides have a limited range of usefulness. In especially nervous cases the common pill of camphor, hyoscyamus and valerian proved quite useful. In his opinion, heroin promises to be an important addition to our means of allaying the accompanying cough or asthma, and is an excellent aid in the treatment of gastro-intestinal irritation that some of these cases suffer from. The initial dose should be small, not over one-thirtieth of a grain, every two or four hours at first. While it should not be used unguardedly, it is much less likely to produce habituation than opium or morphine. All necessary operative work on the nose should be done before or after the hay fever season.

